THE AUTOMOBILE

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LONG ISLAND TRIES A BEACH COURSE

LONG BEACH, L. I., August 4.—Long Island, the scene of Vanderbilt Cup race, possesses stretches of beach that might be available for more automobile racing. One of these ocean boulevards is close to New York City, and the members of the Long Beach Country Club, having experimented hereabouts, decided to hold a trial meet. Twice the rain interposed an objection, but to-day, Jupiter Pluvius having been "seen," the weather conditions were satisfactory and the course itself was in fairly good condition. But the participants were dilatory, and the hour of noon found none ready to answer the call of Starter Stratley or obey the instructions of Referee Schwalbach. An hour and more later there was more activity, but since time and tide wait for neither men nor automobiles, valuable minutes had been wasted, the loss of which later prevented the completion of the program. Incidentally one of the contestants became stranded in the soft sand, and it was a battle to rescue the car from the breakers.

Stanley Martin's Oldsmobile runabout took the honors in the single-cylinder class by a mile in 3:11. C. O. Hudson with a four-cylinder Oldsmobile appropriated the $2,500 and under contest, traveling the mile in 1:34.

Ralph Mongini, who will be the Matheson driver in the American Elimination trial of the Vanderbilt Cup race, took the class for cars costing over $2,500. He was clocked the mile in 1:29. "Jack" Rutherford's 35-horsepower Peerless ran second in 1:34 1-5, and E. R. Strong, a Brooklynite driving a Pierce Arrow had to be content with third place, some ten seconds behind.

Then came the excitement of the day in the race for the women drivers. It was a half-mile handicap, and there were three participants: Miss Emily Potter, driving a 30-horsepower Peerless runabout, scratch; Miss Dorothea Potter, a sister, driving a 26-horsepower Oldsmobile, eight seconds; and Mrs. Peter Smith, driving a 12-horsepower Franklin, 20 seconds. By the time the half mile was traveled the positions of the cars were reversed, the scratch car having caught and passed the other two, and the Oldsmobile reaching the limit machine and going by just before the tape was crossed.

A few hundred yards beyond the tape was a gully in the sand which allowed a foot or so of the ocean to run inland and made it necessary for the cars to "wade" across. The first car went through without trouble, but the Oldsmobile came to a standstill in the soft sand, and immediately the rear wheels began to sink. Before the driver realized it, the wheels were in so deep that the car could not be moved by its own power. And the tide was coming in fast. A car made a dash for the hotel and soon returned with a load of planks, and with the aid of these a dozen young men managed to get the car out of the wet, though not until the old reliable horse had been called to the rescue and the second and third-speed gears of the car had been ripped out. It was somewhat exciting, and the onlookers forgot all about the other races, which were called off. Miss Potter tramped about her half-sub-

MONGINI, THE MATHESON STAR, ESCAPES THE INCOMING TIDE.

MISS EMILY POTTER, WHO DROVE THE 40-H.P. PEERLESS TO VICTORY, STARTING FROM SCRATCH IN THE MILE HANDICAP.

merged car with an utter disregard for the water, and retired only when the waves threatened to break over the automobile.

The one-mile free-for-all and the consolation race were not run off because of the encroaching tide.

PENNSYLVANIA'S FEDERATION AT WORK.

PHILADELPHIA, Aug. 6.—A meeting of the Pennsylvania Motor Federation was held this afternoon in the quarters of the Automobile Club of Philadelphia, at the Manufacturers' Club. Sixteen delegates, representing an even dozen of clubs from various sections of the state, were present. Robert P. Hooper, of the Automobile Club of Germantown, was elected first vice-president, and the representative of the Erie Club was chosen second vice-president.

A committee of three, consisting of President Isaac Starr, Jr., H. Bartol Brazier and Robert P. Hooper, was appointed to draw up a bill for presentation to the next Legislature asking for an appropriation to carry out the Federation's plans in the matter of the Philadelphia-Pittsburg highway. The discussion which preceded the passage of the resolution empowering the president to appoint this committee brought to light the fact that the efforts of the Federation to create interest in the project in all the communities along the line of the road are bearing fruit.

A discussion of the workings of the state automobile law took up fully an hour of the meeting's time. Complaints of the over-officiousness of country constables, and their too evident desire to "turn an honest penny" at the expense of automobilists on the slightest provocation, were registered by the majority of the delegates, and at the conclusion of the discussion Paul C. Wolff, of Pittsburg, was appointed chairman of a committee to draft substitute sections governing the duties of constables and other officers in making arrests, and a new section compelling towns and townships to erect on all main roads signs indicating their limits. Frequent arrests for overspeeding have been made all over the state by township and village officers on the charge of violation of the local ordinance, whereas in the open country there was nothing to indicate to the automobilists that they were within the boundaries of a village.

The Federation's next meeting will be held at Bedford Springs in September. An invitation will be extended to all Federation members throughout the state to tour to Bedford on that occasion, and have a Glidden tour on a small scale.

DELAWARE'S USE OF THE AUTO.

WILMINGTON, DEL., Aug. 6.—For years the matter of transportation facilities between Wilmington and Brandywine Summit camp-meeting has been a problem, because of the extremely hilly and dusty condition of the road, which is about eight miles long. This year the difficulty has been overcome by J. R. Richardson, who has established an automobile route.

MISS DOROTHEA POTTER'S OLDSMOBILE BEING RESCUED FROM THE TIDE THAT WAITED NOT FOR THE AUTOMOBILE.

THE SUMMER TOUR OF THE BAY STATERS

BOSTON, Aug. 4.—What is considered the most successful tour ever undertaken by the Bay State Automobile Association, of this city, was brought to a close last evening, when the cars completed the run from Portland, Me., to Boston. The tour was of eight days' duration, and included a visit to the White Mountains for the finish of the A. A. A. tour and the hill climb in the Crawford Notch road. Though the mountain showers interfered with the climb and caused the abandonment of several short tours through the mountains, the party was favored, as a rule, by good weather. The last day was an exception, for, during the entire run of about 115 miles, a dense fog prevailed, and made it impossible for the automobilists to see any of the scenery, or to drive at more than a moderate pace. The shore road between Portland and Boston skirts the ocean much of the way, and is one of the most picturesque drives in New England. But, with a fog prevailing, the nearness of the road to the shore places the tourist at a great disadvantage.

PRESIDENT L. R. SPEARE AND W. J. MORGAN.

The tour began on July 26, and about twenty machines got away from Boston. Others joined on the way, and for the second day's run there were twenty-six cars. The first day's trip was to Portsmouth, and the second day the run was made to Bretton Woods. It had been planned to hold a run to Franconia from Bretton Woods before the arrival of the Glidden tourists, but the Boston party was so much interested in the finish of the A. A. A. tour that its members did not care to go away for fear they would miss some of the cars. It was hoped to have the trip Monday, after the hill climb, but the rain caused a postponement of both climb and tour, and when the climb was finally finished Tuesday, nobody wanted to make a tour.

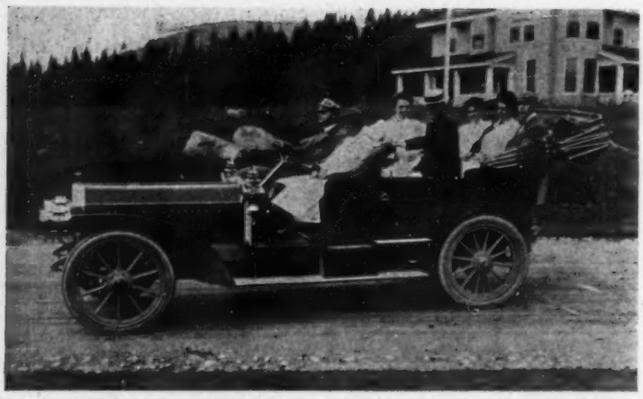
The return home was begun Wednesday with a run to Portland by the way of Bay of Naples. At the Bay of Naples the party was met by the runs and tours committee of the Maine Automobile Club and escorted to Portland, where there was a short parade. Thursday the Bay State party was in the hands of their Pine Tree State friends, and the entertainment included a sail in Casco Bay, a real old-fashioned clam-bake at one of the islands, and a visit to Peak's Island, a popular resort in Portland harbor. In the evening the visitors were entertained at a theatre party in a neighboring amusement park summer theatre.

MR. MORRELL'S TOUR PLAN.

Chairman Robert Lee Morrell, of the Good Roads Committee of the New York State Automobile Association, suggests a simple method to be used in keeping track of cars in such contests as the A. A. A. tour. His plan would be to have as many numbered flags as there were competing cars in the contest. The first car out every morning would be an official car, and it would be followed in order each day by cars carrying the numbered flags, No. 1 being first and the others following in order. None of the competing cars would be allowed to pass the one in front, unless a leading car was overtaken by misfortune of any kind. Then, for instance, if trouble of any sort should happen to the car carrying flag No. 1, the car carrying flag No. 2 would exchange flags when it overtook the disabled competitor. This procedure could be continued indefinitely until the trouble was remedied, when the car that had started out right behind the official car might continue on its way carrying flag No. 33 or whatever flag was in the possession of its occupants when the

THE STOP AT RYE BEACH WAS AMIDST PLEASANT SURROUNDINGS, THE HOTEL YARD BEING EXCEPTIONALLY PICTURESQUE.

MISS FULLER DROVE HER PACKARD WITH EXCEEDING SKILL.



THE FIRST SIX-CYLINDER NAPIER MADE IN THIS COUNTRY PARTICIPATED IN THE TOUR.

car was able to resume its journey and so on indefinitely. If anything happened to the car in which the officials started out, one of them might be transferred to the first car that came along, which thereafter would serve as the official car for the remainder of the day's run and also keep its place as a contestant if no trouble overtook it. A list could be made up at the beginning and ending of each day's run of the flags carried by each car, and it is Mr. Morrell's opinion that the task of scoring a large number of cars would be simplified by this wethod. He does not think that a car on which repeated repairs have been made should be permitted to keep an equal score with another car or cars on which no repairs or adjustments had been necessary.

He is of the opinion that it would be a good plan to run next year's contest for the Glidden trophy over the route of the proposed highway between New York and Chicago, which would give a journey of about 1,000 miles. Mr. Morrell favors this route for the reason that it would have a tendency to arounse interest in the proposed highway, and on this account would serve the double purpose of being a tour and a sort of good roads argument in one. The route would also have the advantage of touching a sufficient number of large cities so that the matter of accommodations for the tourists at the night stops would not prove such a problem as it did on the tour just completed. Another advantage would be that storage facilities would be comparatively easy to secure.

THE DREAM OF CHECKER No. 9.

By GEORGES DUPUY.

One day, on the Glidden tour, I was checker No. 9 at St. Galustin, a very ancient village of eighty-seven souls, in French Canada. As usual, it was early in the morning, and dreadfully hot. How many days had I hung my checkerboard flag to a tree or a telegraph pole, how often had I borrowed a chair and a small table and an umbrella from the grocer over the way, how many times had I cried out to the bare-footed urchins, dogs and loiterers, "Get off the road!" I do not remember, positively. All I can recollect is, having seen for days and days rotund Mr. Glidden get off his Black Whistler, stopping below by checking line, approach my camp with the same angelic smile, shake hands with me, and compare watches. And the rest of the dusty, greasy caravan of the endless, monotonous tour would follow at the same old intervals: First, Van Sicklen and his son and three ladies, always in same attire, exactly filling the green Apperson; then Percy Pierce with his black hat and an air chamber around his body; then Ed Lozier, who, as soon as his car was at a standstill, would yell, "Going up?" then John Wetmore, always dusty and speaking French to any live thing on the road; then Spooner, still talking about his jail experiences at Lima; then—well, the whole band in fact, following each other a minute apart, and responding to my calling out, "Eight twenty-seven!—eight twenty-eight! etc."—the same old "that's right! so long!"

That particular morning when I was checker No. 9 at St. Galustin in French Canada, I remember that a long, slim, dusty, masked driver, who had come up from a car that stopped down the line, waiting for time, bent over me while I was working, and said to me with a sweet voice: "Say, old man, I see you are calling out the exact time of day, minute by minute, and that that Ingersoll watch of yours is a pretty reliable timepiece; now tell me, how would you like to earn a five dollar bill every day?"

I almost fainted away, but found breath to say that I'd like it very much. But I had to brush him off for awhile, for the next car was roaring ten feet from me waiting for his last second—"eight forty-one!"—"that's right, so long!" and the next soon followed—"eight forty-two!"

"It's very easy," continued my tempter, "I'm on the tour for the Nixon Whiskey Company—(here, have this complimentary sample)—and after having carefully studied the situation, I evolved the idea of having placards printed 20 by 10 inches, reading thus: 'Is the time for a Nixon high ball; that's all!' Then if you care to tack one on the front of your table, so that every tourist can see it, well—you understand? You call out the minutes, and the public reads the rest."

Well, may I burn for eternity in a thousand hades if that man didn't corrupt me then and there; rubbed out of me all sentiments of duty with his infernal firewater, which I drank to the last drop, and what happened from that moment is positively incredible. The cars—just imagine—refused to stop at my station any more; they would pass me at terrific speed; I could see them climb mountain sides of 25 per cent. grade at fifty miles an hour; they would run over dogs, chickens, calves, and even people; crush fences and hedges, and increase their speed more and more all the time. A short, fat woman of the party, I remember, sent me a kiss with her hand while going a-mile-a-minute. Finally, I took down my flag; the last car was gone. Suddenly the "Big Six" Pierce, that used to pick up the checkers, shot down the hill, and, a second later, a strong hand grabbed me by the neck, and, still holding my flag in my hand, I found myself in the tonneau, already containing nine people, with the houses and trees flying back at a fantastic gait. Then the big car struck an enormous rock—I was projected away—and woke up—it was all a dream; I had not left my place at all.

But what I saw in opening my eyes looked to me more like an illusion than the stirring events which preceded it. Just like Napoleon, who one night took the musket out of the arms of a sleeping sentinel and set himself on watch, there was Mr. Glidden and Mr. Deming, both awaiting my awakening to be checked themselves. They had spread out my flag on the grass, and, seated opposite each other, were gravely playing a game of checkers on it, with my watch, my pipe and empty "sample" bottle and a few rocks as pawns.

Since the new law went into effect in Virginia 268 automobiles have been registered with the secretary of state.

EXCELLENT ACCOMMODATIONS WERE OBTAINABLE AT THIS WELL CONDUCTED MAINE HOTEL, MAPLE BAY INN.

THE QUESTION OF THE 1907 A. A. A. TOUR

WITH the 1906 A. A. A. tour becoming matter of history, its good points being recognized and its shortcomings more or less vigorously criticised, unavoidably there intrudes the question of next year's national tour.

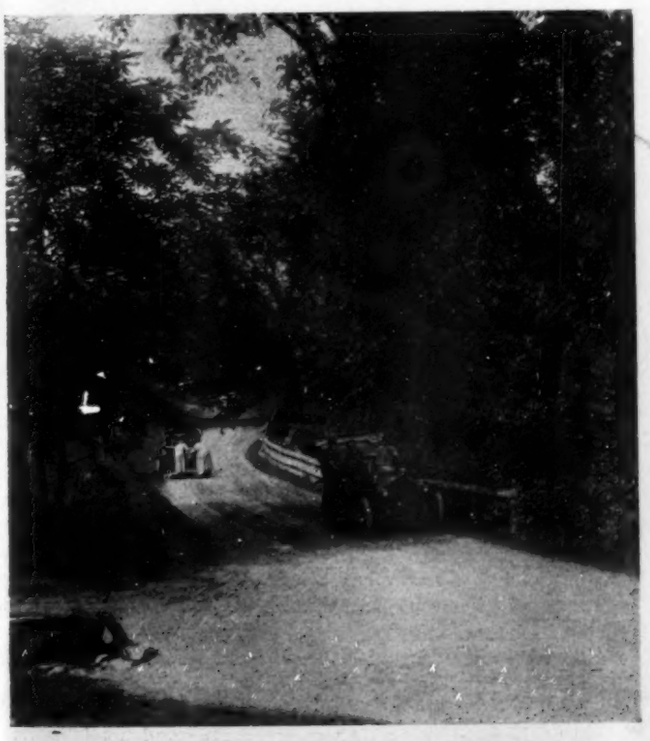
There is a well-founded impression that the 1907 tour should be a pleasure event, pure and simple, without its enjoyment being marred by a strenuous contest which always brings about discontent from the unlucky and defeated and meager praise even from those who divide the honors. The value of a contest such as took place this time for the Glidden trophy is unquestioned, and, though the rules will stand considerable revision, the general benefit to the entire industry is considered widespread by many. Originally it was Mr. Glidden's idea that his trophy should be possessed by the club from which came the "winner" of a pleasure tour. But here comes the rub: The problem of evolving a winner of a pleasure tour.

It is the consensus of opinion that the tours as organized and carried through in both 1905 and 1906 were so entirely within the reasonable performance of the automobile of to-day as to make the selection of a real winner a very difficult or nearly impossible matter. With several clean scores, even though the route extends over a thousand miles, much of it mountainous, the problem remains of how to bring out the element of road competition even more sharply, without infringing upon the speed laws of the various localities passed through.

The suggestion has been made spontaneously in several quarters that a tour from New York or Boston to Jamestown, Va., and return would be an excellent test for 1907. In order to get the required distance, it would either be necessary to start the tour from some point north of New York--say Springfield or Boston—or else it would be necessary to make a long detour, probably into Pennsylvania, to make up the necessary number of miles to and from Jamestown. Again, the holding of an exposition in the historic Virginia town next year would lend an additional interest to the turning of the A. A. A. tour that way, especially as the principal tour for 1904 was run to St. Louis, during the exposition there that year. Virginia's event will be notable.

There need be no doubt about the difficulty of any long tour which takes in any considerable stretch of Virginia. Below Washington, D. C., good roads are in a decided minority, and it is more than probable that the number of clean scores would not be sufficiently great at the end of a 1,000-mile run to embarrass awarding of the trophy on that score, especially if the trip should chance upon bad weather. Another thing, the otherwise grand old commonwealth needs an object lesson in the direction of good roads, Virginia being one of the most backward of states in that regard.

W. E. WRIGHT AND PARTY EN ROUTE HOME
in the air-cooled Knox, which was one of the "Lucky 13" to finish with perfect scores in the A. A. A. tour.



TO BOSTON THIS PACKARD AFTER-THE-TOUR PARTY:
H. D. Newman at the wheel; Albert Mackie, also of New Orleans, and W. H. Kidson, of Chicago.

Except in a few sections like the Shenandoah Valley, where natural conditions favor, automobiling is still in its infancy. Road building in the sense now known in the Eastern and Northern States is practically unknown in Virginia. Particularly since this state is on the natural routes from the Potomac to the Carolinas, Georgia and Florida, there needs to be at least a good thoroughfare from Washington to Richmond before touring between the North and the South can achieve the popularity it deserves. So all conditions seem to point favorably to a 1907 course for the A. A. A. tour which shall include at least a portion of the South, and it is to be hoped that the officials of the A. A. A. will take up the matter in due time.

BELIEVES IN FAIR PLAY FOR TIRES.

Editor THE AUTOMOBILE:

Reading between the lines of the A. A. A. Tour, it looks like an almost wholesale arraignment of the various tires with which the competing vehicles were equipped. In the final summaries "tire troubles" are met about as often as all other causes of failure combined; in most instances this very convenient term is

the only explanation given as causing the penalization. The current advertising of the manufacturers whose cars competed, with minor lapses from clean scores, is apparently affected by the same tendency—to put the blame wholly on the tires.

Much of this is probably strictly correct, and yet the result must inevitably be that a false or unfair impression is conveyed to great numbers of American people whose eyes are closely upon the automobile industry to-day—the possible new owners of 1907 and thereafter. The theory that automobiling is one constant battle with tires has been cultivated in many quarters. Not long ago, for instance, a reputed gasoline engine expert, reviewing the progress in that field within the past few years, said in one of the leading automobile weeklies that the uncertainties of road travel had been "wholly shifted to the tires," etc., etc. And the stale joke to the effect that the new recruit would not feel the expense of buying his car, but that the pinch would come when he commenced to figure on tires, is still doing duty, sometimes in very influential mediums.

True, pneumatic tires are not perfect, and, of course, they are expensive—naturally so with the crude, wet rubber bringing well above a dollar a pound as taken from the hold of a coast-line freighter. But they have been wonderfully improved, along with automobiles and accessories; and they are not the uncertain things some would have us believe. Every clean score in the Glidden Tour is a wonderful testimonial to the quality and endurance of the pneumatics; but, of course, the succession of zeros (meaning no penalties) for the twelve running days makes a less visible showing than a series of figures scattered through these same days, with the single explanation "Tire Troubles" in the final column, under "Causes of Penalization," or something of that kind.

First brought out for use on the light bicycle—man and wheel combined averaging perhaps less than 200 lbs. weight—pneumatics were impressed into the service of the automobile builder and user as an additional means of comfort. Meanwhile weight was multiplied and speed much increased; distances covered, too, were multiplied. But the same materials—in the opinion of many not suited naturally to the greater strains—have been continued with such improvements in design and construction as experience has suggested. There is a natural limit of endurance to rubber and fabric, and such a test as the A. A. A. Tour seems very close to that limit, sustained pace and character of country traversed considered.

There is no need for minimizing the faults of tires; but they should not be overloaded with criticism.

ROBERT BRUCE.

Clinton, Oneida Co., N. Y.

THE AIR-COOLED CONTINGENT.

By E. L. FERGUSON.

Never before has there been so large an opportunity for the air-cooled motor as there was in the A. A. A. tour to demonstrate its all-around efficiency, for every adverse condition occurred in multiple. Hot weather prevailed all through the tour, and continuous climbs of from three to five miles were frequent in the four days of mountain touring, with the added fact that the long climbs were generally through roads so narrow that one car could not pass another, the marginal confines being dense forest that shut off all air to the point that the forward motion of the cars afforded no relief to their passengers.

The universally satisfactory performances of the air-cooled motors must prove to the most captious critic that hereafter reason and not prejudice should prevail in their estimates. If regret there be in this direction, it must be that not more makers of this type were represented in the tour, but the loss is theirs wherever the regrets come from.

In conclusion, let it be put on record that the A. A. A. tour of 1906, whatever its fundamental design, served to demonstrate beyond any automobile event ever held that the automobile—especially the American made— has come to its own and will stand abuse beyond the conception of any man not on that tour. Neither pen nor camera can convey to the most receptive mind what the various cars were put to, and, in agreement with many a factory representative, the thought must be expressed that the tour was of incalculable value to every maker whose car was on the list. Those makers who failed to be represented in some manner lost for their designing and constructing departments opportunities not to be regained, replaced or duplicated for a considerable time to come.

SUPT. TUCKER STATES SOME FACTS.

A. B. Tucker, who acted as superintendent of the A. A. A. tour, has issued a statement explaining some things in connection with the affair which should answer much of the unfavorable criticism that resulted in great degree from the insufficient hotel accommodations at several points. Mr. Tucker sums up the tour in this manner:

"There can be no doubt that the tour was a grand success from practically every standpoint. While the checking system used is not ideal, it is far in advance of any previous method devised for obtaining the relative standing of cars in a tour. It will require, if used again, some modification, probably by shortening the controls, by adding observers or by making the checking a secret process. But it undoubtedly strikes the keynote of the proper method for determining reliability and normal running.

"From the manufacturer's standpoint, the tour showed the marvelous efficiency of the American product, not only indicated in the cars which made clean scores, but also as shown in the records of many which lost by the hardest kind of luck from reasons which detracted not at all from the value of the cars themselves. At the same time, it must never be forgotten that the Glidden contest always has been and always will be a contest of drivers and not of cars.

"Some facts connected with the management of the tour have escaped general notice. The facility and lack of expense attending the passage of the cars through the custom houses of two countries was only effected by the most laborious and painstaking work on the part of the committee. As against a delay of three hours which the private tourist encounters, the Glidden tourists had to wait but two minutes; as against a usual expense of $37, the Glidden tourists paid but $10. At Jackman the return was equally devoid of annoying details.

"The wonderful reception along the line, which will have a far-reaching effect in swaying public opinion and modifying legislation and increasing the selling field for American automobiles, was not a matter of chance. Previous to the tour every country editor and each community was in receipt of letters from the committee explaining the tour, its objects and its administration, and the gathering which ensued, the closed shops and mills and the general holiday were thus induced.

"The question of hotel accommodations, while, in itself a minor detail, has been distorted into undue prominence, but does not call for much discussion. With the tour laid into cities and towns, where, by reason of heavy tourist travel or inherent lack of accommodations, only a portion of the tourists could be accommodated at the best hotels or with adequate rooms and baths, or, in some cases, with no rooms at all, the committee and the superintendent attempted to provide for the tourists and were unable to do so to the satisfaction of all concerned.

"It is impossible to prepare an exact financial estimate yet, but the best possible estimates show a deficit for the American Automobile Association of about one thousand dollars. This is due mainly to efforts made to save expense to members of the party in garage charges, gasoline and oil supplies, customs annoyance, the carrying of baggage, and general discomfort.

"Among the many lessons which the tour has taught are two important ones: (1) that $50 is too low an entrance fee to meet the always heavy expenses; and (2) that 300 tourists are too large a body to be moved and accommodations satisfactorily arranged for, except under unusually exceptional conditions."

"1906 OHIO AUTOMOBILE ANNUAL."

The road book on which Secretary Asa Goddard, of the Cleveland Automobile Club, has been working for some time has just been published. This is the first attempt to outline routes especially for autoists in the State of Ohio, except the very few that have been issued from time to time in the form of route cards and other brief data for special runs. In the volume of 72 pages there appear quite a number of outline running directions, principally from Cleveland, Akron, Findlay, Chillicothe, Columbus, Springfield, Dayton, Tiffin, Steubenville, Ashtabula, and a few other points. The principal routes are accompanied by outline sketches, which give a fair idea of the directions.

Among the miscellaneous matter is a reprint of the present Ohio State law and the ordinances for Cleveland, Cincinnati, Columbus, Toledo, Canton, and other principal cities. The little book is put up in good shape. There are garage and hotel lists, together with a roster of the automobile clubs and their officers in the principal cities.

THE CLIMB OF THE NOTCH.

BRETTON WOODS, N. H., August 6.—The climb of Crawford Notch did not prove a satisfactory substitute for the more spectacular ascent of Mount Washington, the highest peak in the Eastern States and known by every schoolboy in the country. Another year it is among the probabilities that the eight-mile climb of the cloud-capped summit will be resumed—that is, it will be resumed if the owners of the carriage road will refrain from mulcting the automobilists, who, generally speaking, have become decidedly averse to being looked upon as "good things." Guy Vaughan and the new Stearns made the most notable pair in the Crawford Notch climb, but unfortunately the other free-for-allers were put out of the running for one reason and another. R. Crawford with a Crawford car certainly wanted to win one of the Crawford Notch events, but fate was against him—or rather it was an Oldsmobile of a little more horsepower—and he had to be content with second place. C. F. Barrett must be considered a notable winner in that he captured one event with the Columbia car that had carried him through the A. A A. tour with a perfect score. Koehler, the persistent Buick driver, failed to meet any of his own gasoline class, and naturally didn't relish a defeat at the hands of Rogers and a steam rival. The air-cooled contingent figured in the proceedings when G. Crittenden's Premier scored a victory. The Crawford Notch entry was not large; manufacturers generally did not evince the expected interest, and the general demand is for Mount Washington next year.

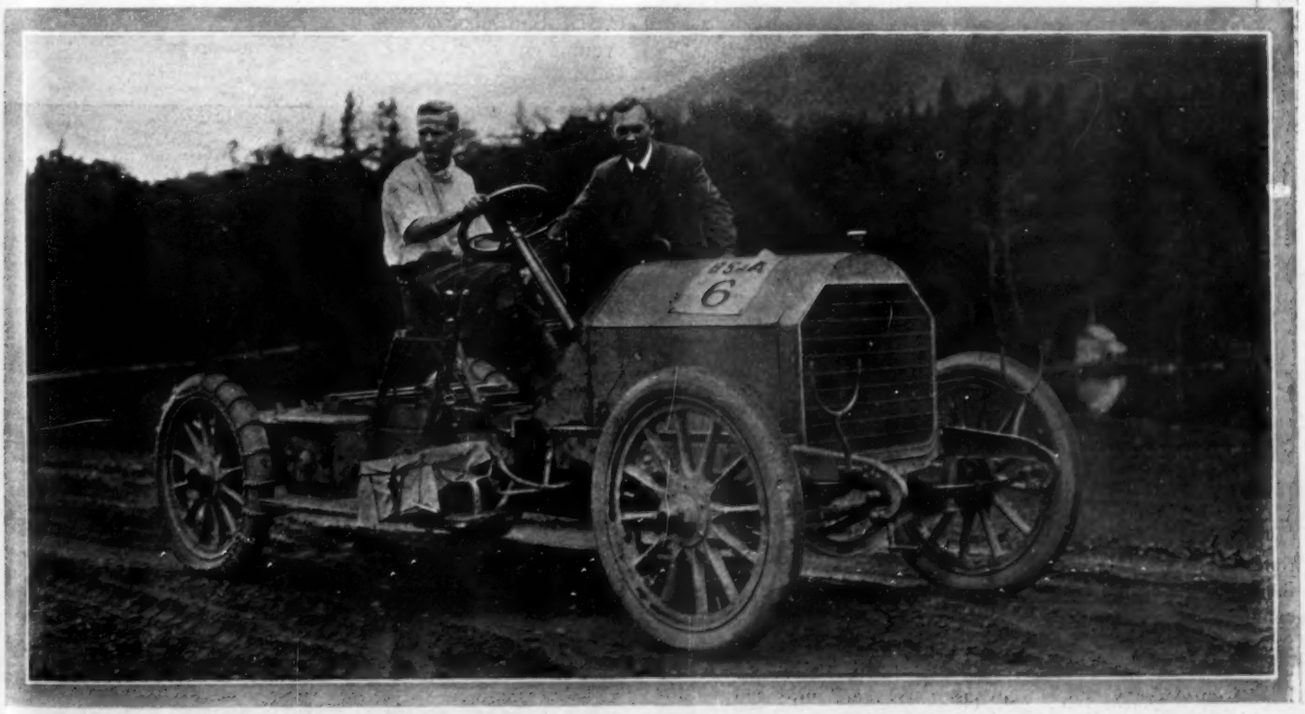
A SIGN WORTH READING

As a suitable unofficial finale for the annual A. A. A. tour the climb was a very pleasing diversion.

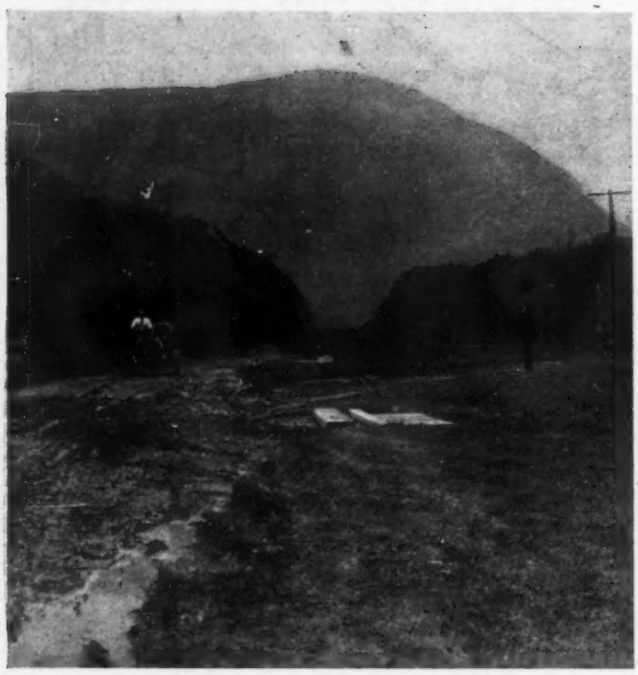
HE HAD THE TIME OF HIS LIFE.

One of those who journeyed to the White Mountains country at the time of the completion of the A. A. A. tour was Harry S. Houpt, the well known New York agent of the Thomas car. This is how Mr. Houpt recites the delights of touring:

"I am able to honestly state 'I had the time of my life.' We started from Broadway and Sixty-third street, Tuesday, July 24, at 10:30 A.M., and the party included Mrs. Houpt, my niece, Miss Dorothea McCartney, and Mr. and Mrs. Fred J. Titus. At Boston we were to join the B. S. A. A. run to Bretton Woods. After stopping for lunch at New Haven we continued to Hartford, followed the west bank of the river and reached Springfield long before nightfall. Nobody wanted to stop, although we were liable to be overtaken by darkness in the hills near Palmer, and so it was decided to make Worcester, which place we reached at 9:30 P.M., stopping for the night. Starting at 9 A.M., Wednesday, we reached the Touraine Hotel at 11:30, remaining over the day and night. Leaving the 'Hub' Thursday at 9:30 A.M., we made what I consider a remarkable run, as the roads were unknown to all in the party, notwithstanding which we joined the Boston contingent at Rye Beach (sixty miles from Boston). When we had partaken of lunch we soon discovered the schedule mapped out by these Bostonians entirely too languid to suit New Yorkers, so continued to Portsmouth, N. H. We tarried not in the quaint city where the Russian-Japanese treaty of peace was signed, but headed for the open country north, which eventually brought us to Intervale, which has a hotel under the management of a Mr. Mudgett, who has and is proving himself a most genial host to all automobilists passing his way. He and his hotel are well known to all Boston automobilists. Intervale is about 168 miles from Boston, our starting place that day. Bretton Woods is only twenty miles from Intervale, through most beautiful, dense, virgin woods, leading to the famous Crawford Notch, of which we had heard much and which had the effect of raising our expectations as to what a hill really is or should be. We were disappointed as we climbed the Notch with seven in the car and unaware that we had surmounted the grade until we were told we had passed through the Notch. We met with grades much more severe later on after leaving Lake Champlain and along the west shore of Lake George, near Hague, N. Y. My advice to all tourists is to religiously avoid the first road



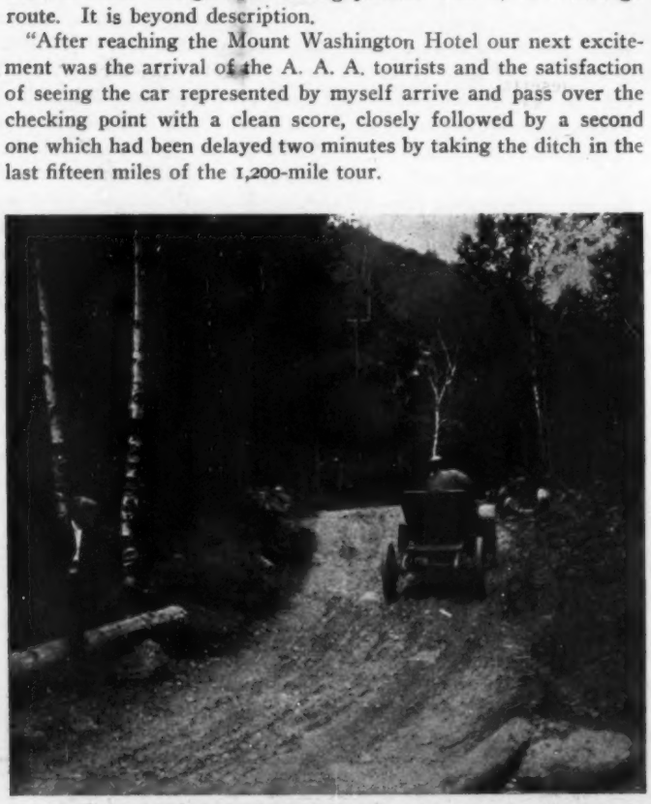
GUY VAUGHAN AT THE WHEEL OF THE STEARNS WINNER, WHICH HAS PLENTY OF HORSEPOWER ON TAP WHEN NEEDED.



KOEHLER, THE BUICKITE, EMERGING FROM THE NOTCH.

west of Lake George and running parallel with it, as a through route. It is beyond description.

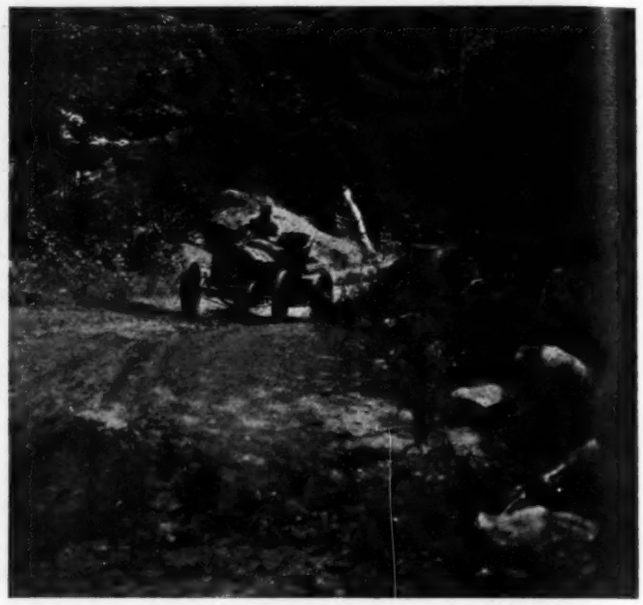
"After reaching the Mount Washington Hotel our next excitement was the arrival of the A. A. A. tourists and the satisfaction of seeing the car represented by myself arrive and pass over the checking point with a clean score, closely followed by a second one which had been delayed two minutes by taking the ditch in the last fifteen miles of the 1,200-mile tour.



ONE OF THE GRADES THAT INTERSPERSED THE CLIMB.

"After a delightful time at the Mount Washington, we left Sunday, 10:30 A.M., for Montpelier, Vt. (120 miles), reaching there at 8 P.M., after running through heavy showers and 'real country roads' without skid chains. We stopped at Montpelier for the night, starting for Burlington on Monday and reaching there for lunch at the Van Ness. From Burlington we ran inland from Lake Champlain fifteen miles to a place not on the map called Underhill, and spent one of the very enjoyable days. Dr. Burdick was given his first auto ride, and, to make a long story short, he is a convert.

"After leaving Burlington we started for Saratoga, quite a run through mountain roads, and, after hairbreadth experiences in and near Hague, N. Y., we finally reached Saratoga. From Saratoga we made New York in nine hours actual road running, which is another remarkable day's run, as the last sixty miles were made on muddy roads and through rain. The total mileage figures up 1,200, and we were nine days out of New York—all enjoyment."



R. CRAWFORD DRIVING A CRAWFORD UP CRAWFORD NOTCH.

NEWPORT HAS SOME BEACH RACING.

NEWPORT, R. I., Aug. 6.—Carnival week included automobile races on Sachuset Beach, witnessed this afternoon by several thousand people. E. L. Baron, driving a 10-horsepower Ford, won the two-cylinder gasoline class in 48 4-5. B. F. Blackington won the stock touring car event with a 24-horsepower Stanley. John E. Pugh, 28-horsepower Queen, defeated C. D. Snow, 20-horsepower Stevens-Duryea, in a match event. S. T. Kellogg won the motorcycle race with an Indian.

C. F. BARRETT, COLUMBIA WINNER, WAITING FOR THE WORD

PNEUMATIC TIRES OF THE CLINCHER TYPE

IF the automobile as a whole is a thing in which the best is in the end the cheapest, this is pre-eminently true of the tires on which it rolls. The tire bill represents fully one-third of the total cost of maintenance, and is equal to, if not greater than, the mechanical depreciation. Compared with the tire bill for a season, the outlay for fuel, even at the present high and increasing price of gasoline, is a minor item.

This is a general statement. The expense of pneumatic tires is always high, so high that only the greater comfort, the higher speed, and the saving of wear and tear made possible by them can justify their use instead of solids. But since they must be used, it is the worst possible economy to purchase anything but the best. A pneumatic is worthless unless it holds air and stays on the rim; and a tire of cheap rubber, a tire badly put together, or one too small for its load, will fail in one or both of the above respects long before it is worn out.

Axle Loads and Tire Sizes.

A schedule of proportions between axle loads and tire sizes has been adopted, and is supposed to be in force, among American tire makers, which is as follows:

2 1-2 inch tires, all diameters	225 pounds per wheel.
3 inch tires, all diameters	350 pounds per wheel.
3 1-2 x 28 inch tires	490 pounds per wheel.
3 1-2 x 30 inch tires	450 pounds per wheel.
3 1-2 x 32 inch tires	555 pounds per wheel.
3 1-2 x 34 inch tires	600 pounds per wheel.
3 1-2 x 36 inch tires	600 pounds per wheel.
4 x 30 inch tires	550 pounds per wheel.
4 x 32 inch tires	650 pounds per wheel.
4 x 34 inch tires	700 pounds per wheel.
4 x 36 inch tires	750 pounds per wheel.
4 1-2 x 32 inch tires	700 pounds per wheel.
4 1-2 x 34 inch tires	800 pounds per wheel.
4 1-2 x 36 inch tires	900 pounds per wheel.

For weights in excess of 1,000 pounds per wheel 5-inch tires and over are recommended; the weights given apply to the car without any passengers aboard. To find out the weight per wheel the car should be run on a platform scale, one end only at a time, the center of the car being even with the near edge of the scales. One-half of the scale reading for each end of the car will give the weight per wheel, approximately.

Often, however, money can be saved by fitting larger tires than the foregoing schedule calls for, when the wheels are small. The only real objection to large tires is that they increase slightly the dust-raising qualities of the car, and its tendency to skid. Both of these points are worth sacrificing for the sake of saving tire cost, since dust may be minimized in other ways, and no one needs to skid if he drives with reasonable care.

With the tires, as with the rest of the car, the user can influence the cost account a great deal by judicious treatment and by proper attention at the proper time. A reckless driver may ruin a set of tires in a few hundred miles, while another with similar car and tires may get three or four thousand miles out of them. Although it takes very little more time to care for tires properly than to care for them as badly as possible and still keep them in commission, the difference in yearly expense between the former and the latter course may readily amount to two or three hundred per cent. It is safe to say that the little time required to care properly for the tires will pay for itself better than the same time spent in almost any other work about the machine.

How Dimensions Are Measured.

Tires are usually referred to by their width, as a driver will say he has "4-inch tires" on his car. They are made, however, in various diameters for any given width, and in ordering new tires the owner should be careful to give the diameter of the tire as well as the width. Many persons do not know how the diameter of a tire is measured, or in fact how any of the usual measurements are taken. Some suppose the wheel rim diameter to be the proper one for designating a tire, and others that the tire is measured from the center of the shoe on one side to the center of the shoe on the other. Neither of these assumptions is correct, for the tire is measured on the outside of the tread for the diameter. The accompanying diagram (Fig. 1) and table are issued by the G & J Tire Company, original holders of the clincher tire patents, and they give the principal dimensions of all tires in ordinary use.

Table of Dimensions to Accompany Fig. 1.

A INCHES.	*B* INCHES.	*C* INCHES.	*D* INCHES.	*E* INCHES.
2 1-2	26	18 3-4	19	1 3-8
3	26	19 3-4	20	1 3-8
2 1-2 and 3	28	21 3-4	22	1 3-8
2 1-2 and 3	30	23 3-4	24	1 3-8
3	32	25 3-4	26	1 3-8
3	34	27 3-4	28	1 3-8
3	36	29 3-4	30	1 3-8
3 1-2	28	20 11-16	21	1 3-8
3 1-2	30	22 11-16	23	1 1-2
3 1-2	32	24 11-16	25	1 1-2
3 1-2	34	26 11-16	27	1 1-2
3 1-2	36	28 11-16	29	1 1-2
4	30	21 11-16	22	2
4	32	23 11-16	24	2
4	34	25 11-16	26	2
4	36	27 11-16	28	2
4 1-2	32	22 11-16	23	2 1-4
4 1-2	34	24 11-16	25	2 1-4
4 1-2	36	26 11-16	27	2 1-4

The clincher tire shown in section in Fig. 2 is the most extensively used type of pneumatic tire and is the one referred to in this article. The form and general characteristics of the outer shoe and inner tube are familiar to every autoist, but the internal construction can be best understood by reference to a section. The section here shown is of a tire "blown up" and is drawn at a retaining lug so that the method of holding the tire in place on the rim can be easily understood by an examination of the drawing.

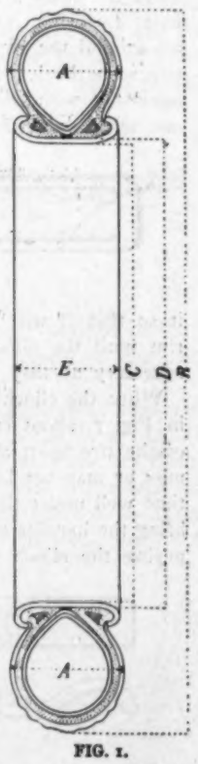


FIG. 1.

Manipulation of Clincher Tires.

There is a good deal of a knack in putting on or taking off a tire, and especially in fitting a new shoe to a rim for the first time. But it is not difficult to acquire, though of course the amateur driver, who only occasionally removes or replaces a tire, cannot expect to attain the speed in the operation that is easy to the professional chauffeur.

Instructions for the mounting and dismounting of clincher tires, and for the repair and replacement of the inner tube, are given in the instruction booklets of the tire makers, and should be followed closely. The following are general instructions applicable to any clincher tire of conventional form, and they will be found in some instances useful to supplement the maker's instructions where the latter are very brief.

To remove the tire: There is a considerable variety in the shape and style of tire tools as adopted by different makers, but the tools usually furnished resemble large oyster knives, without sharp edges. One of these is shown in Fig. 3. Fig. 4 shows another much-used form—the Continental pattern. The tools are used to pry up the edges of the tires, as well as in other ways to be indicated. Some of the tools of special shapes

are designed either to protect the inner tubes from risk of accidental injury by these tools, or to aid in spreading the outer cover when partly on the rim for the insertion of the inner tube. Except when otherwise noted, the ordinary straight tools are here referred to.

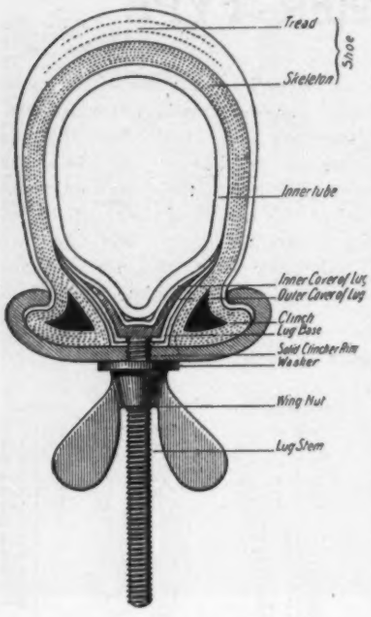


FIG. 2.

When Tire Is Punctured.

When a tire is punctured, the inner tube should be immediately replaced or repaired. If the location of the puncture is known, and if it is a simple puncture, it may sometimes be repaired without removing the inner tube. Commonly, however, it saves time and insures a better repair to put in a new inner tube, and repair the punctured one at leisure. To do this proceed as follows:

Jack up the wheel and unscrew the dust cap and nut from the valve stem. When the tire is deflated, unscrew the nuts on the tire bolts till they are at the ends of the bolts. Push the bolts into the tire, freeing the inner tube around the bolts (see Fig. 5). Next loosen the outside edge of the tire all around the rim, by pushing forcibly against the side of the tire with the left hand. If the "clinch" sticks in the rim, push against it with one of the tools, and, when the clinch is free in one spot, insert the point of the tool as in Fig. 6, first wetting

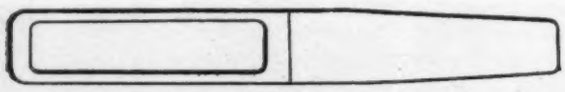


FIG. 3.

it so that it will move freely. Work the tool all around the rim until the clinch is free, pushing the bolts into the rim if necessary as they are reached.

When the clinch is free, insert both tools, if two are used, as in Fig. 7, about one-fourth to one-third of the outer diameter of the tire apart and as far as possible from the valve. There may or may not be a bolt between them. Work them one at a time well under the clinch, and when you have a good purchase bring the handles of both tools together down toward the spokes, prying the clinch over the head of the rim. If the tools are

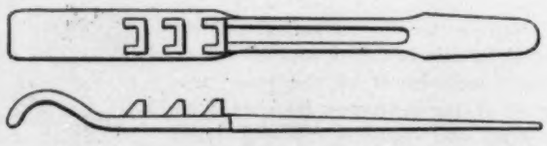


FIG. 4.

properly spaced, the clinch will come readily over the bead and will not tend to return. Now work the tools around toward the valve in both directions, and the whole clinch will presently come clear. Be sure that each bolt is pushed well into the rim before you come to it, so the inner tube will not be damaged by the tools.

To free the clinch with a single tool takes a longer time and more skill. It is done by pushing the case or shoe clear over and getting the end of the tool under the inner edge of the clinch, after which it may be worked over the bead. If now you push down hard on the tread of the tire, the tool may be worked around the rim. Start, as in the former case, opposite the valve and work around to it, and see that each bolt is pushed clear in as you come to it.

FIG. 5.

Removing the Inner Tube.

If now you wish to remove the inner tube, push the valve stem through the rim, and, taking hold of the inner tube, withdraw it carefully. If it sticks to the case, take a close hold and pull very gently, as it is tender and will easily tear. If it sticks very obstinately, as it may after having been heated by high speed, squirt a few drops of gasoline on it, and work it loose very carefully, adding small quantities of gasoline as needed. After this treatment it will be sticky and should be thoroughly dried, after which French chalk or talcum powder should be rubbed on it and on the inside of the case. If the tube is to be replaced the air remaining in it may be expelled by rolling the tube up on itself after first removing the valve plunger shank, beginning opposite the valve.

The new tube may usually be inserted without disturbing the other clinch. For this purpose the tool shown in Fig. 8 is very con-

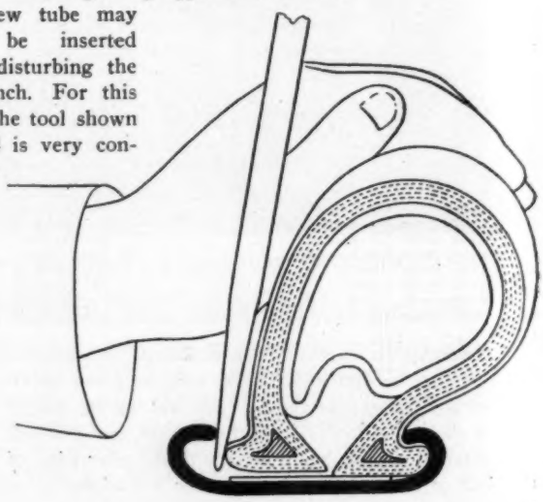


FIG. 6.

venient, though not essential. Begin by powdering tube and interior of case liberally with soapstone, French chalk or talcum power, then wholly deflate the inner tube by rolling it up as already described. Draw the bolts into their normal

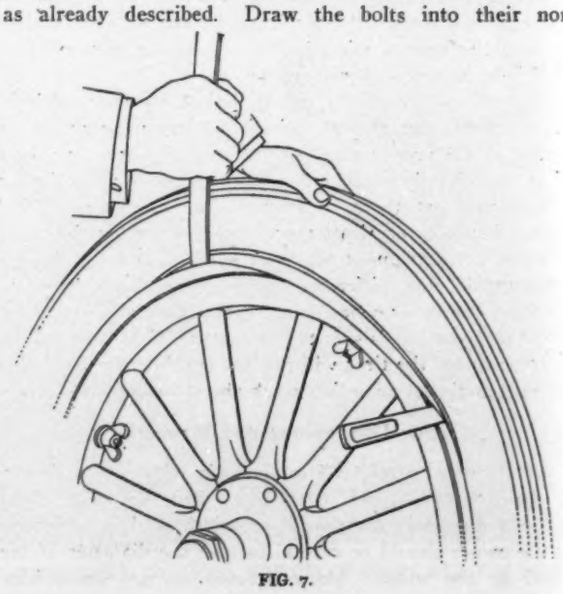


FIG. 7.

positions, but do not tighten them. Insert the valve through the hole in the rim, screw the nut on the stem for a short distance, and work to each side from the valve until the tube is in place. If the shoe has an inner protective flap it should attach to the side of the shoe nearest to the body of the vehicle, and the tube should be put in over this flap. To insure that the tube is nowhere pinched, under either the bolts

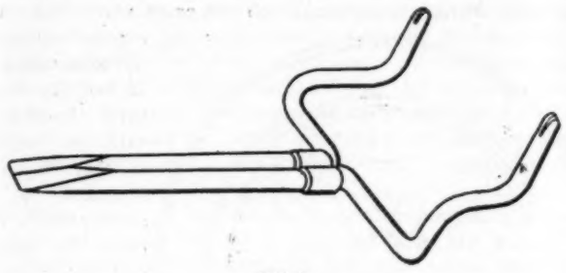


FIG. 8.

or the inner clinch, push the former up and see that they come back readily to their proper position, and then pass one hand all around the tube after it is in place. A tube pinched in either way, or pinched under the inner head of the valve (Fig. 9), will sooner or later break at that point when inflated. Finally, inflate the tube slightly until it will hold its shape, to avoid creasing, and if necessary feel it again.

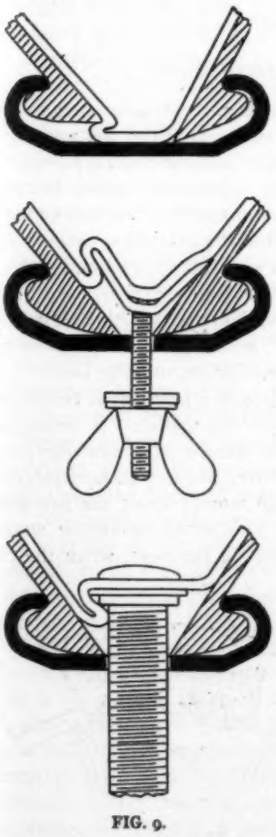


FIG. 9.

Replacing the Outer Clinch.

To replace the outer clinch, first push all the bolts into the rim. Begin next to the valve, and get the clinch into place at this point without using the tool, to avoid risk of tearing the inner tube. If tools prove necessary, use one on each side of the valve. A good method is that illustrated in Fig. 10, in which the special tool, Fig. 11, is used. One of the ordinary tire tools is inserted between the clinch and the wheel rim at a point below the center of the wheel, and this lever is held back by the leg; the clinch can then be readily pushed into place at valve, using the special tool in the position shown in the sketch. When the clinch has been seated at the valve the hand tools can be worked around from point to point, a distance of about two inches at a time, the shoe being held firmly toward the inside.

If the special tool shown in Fig. 11 is not at hand, the ordinary tools can be used after the clinch at the valve is in place, by working them from point to point, each tool being used alternately to keep the part already in the rim from slipping off and to force a new part on the rim. The first and second positions in using the lever to force the clinch into place are shown in Fig. 12.

In getting on the shoe use great care not to let the points of the tools pinch the inner tube. This may be best avoided by inserting the first tool near a bolt, and with the other working the clinch into place till the next bolt is reached. If the last fraction of the clinch is put in next to a bolt, the latter will protect the air tube from being pinched as the clinch snaps in. Large tire shoes tend to double up, with the sharp edge of the clinch against the tool. On reaching each bolt, push it clear into the rim until the wing nut strikes the latter.

After the Clinch Is in Place.

After the clinch is in place, it is well to make sure that the air tube has not been pinched under it. Grasp the shoe with both

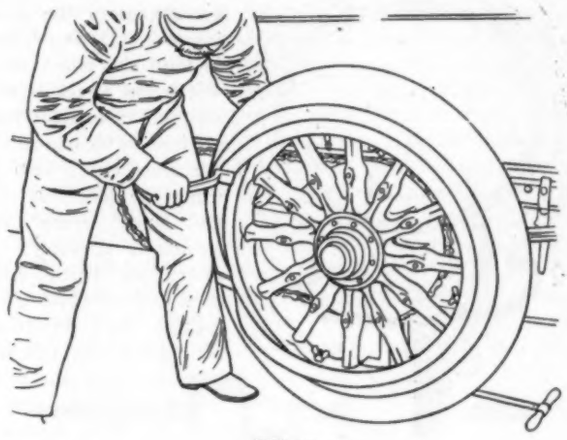


FIG. 10.

hands, press inward with the thumbs near the clinch and raise the clinch slightly. Use the tool if necessary. If the tube shows under the edge of the clinch, it has been pinched. Raise the clinch by the tool and free the tube. Finally, push each bolt in turn into the rim and pull it back. If it comes back freely to its normal position, the air tube is not pinched. If any resistance is felt, it means either that the tube is pinched or that one clinch is over instead of under the bolt head. Correct by aid of lever, as already noted. Finally, tighten the bolt nuts, inflate to riding

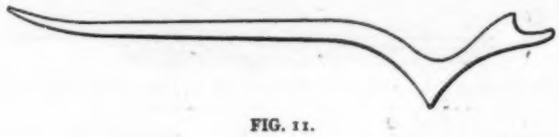


FIG. 11.

pressure and tighten nuts again. The proper position of the tube and the shoe before final inflation are shown in the section, Fig. 13.

There are two ways of replacing a complete tire. One, recommended by the G & J concern, and by Michelin, is to put the air tube in the tire after the inner edge of the case has been put in the rim. Start by matching the valve hole in the case to that in the rim, and work both ways from the valve hole, using the levers to get the case on the last part of the rim. Put the bolts

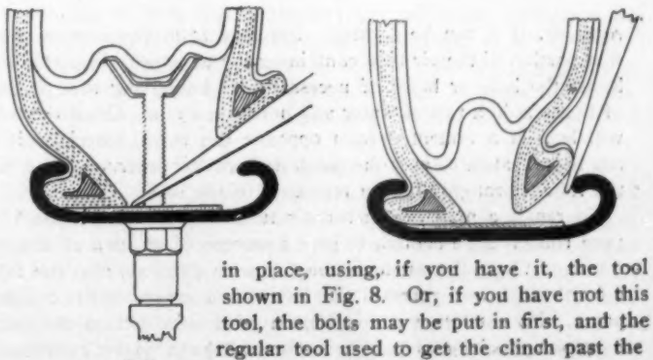


FIG. 12.

in place, using, if you have it, the tool shown in Fig. 8. Or, if you have not this tool, the bolts may be put in first, and the regular tool used to get the clinch past the bolt heads. Next proceed exactly as previ-

ously described for replacing the air tube and for replacing the outer clinch. Before any tire is placed in its rim, the latter should be thoroughly cleaned.

The other method is recommended, with slight variations, by the Continental and Goodrich companies, and is as follows: Inflate the air tube slightly, powder tube and shoe, and, laying the latter on the ground, place the air tube inside it. Don't let dirt get in with the tube. Starting at the top of the wheel, insert the valve stem through the hole in the rim and work the inner clinch into place, using the levers as needed and being careful not to stretch it unevenly. Then insert the bolts, using a lever to pry up both clinches, Fig. 14. Be careful that the air tube is not pinched by bolts or clinch, and push up the bolts to be sure that they are free, feeling also of their heads for the same purpose. Then get the outer clinch into place, as previously described.

FIG. 13.

Concerning Roadside Repairs.

It is always best to put in a fresh inner tube rather than attempt to repair by the roadside, both because the inner tube may have more than one hole in it—as when a nail pierces clear through—and because it takes several hours to dry a patch completely. In case of emergency, however, a puncture may be repaired by the roadside, if it can be located. Slip out from the case or shoe that portion of the air tube containing the puncture (Fig. 15), and locate the hole or holes, if necessary, by immersing that portion of the tube in a pan of water and pumping air in. Often the tube will leak at a cemented joint opposite the valve, especially if it has been heated. Apply the patch as hereafter instructed and dry the tube thoroughly before replacing in the shoe.

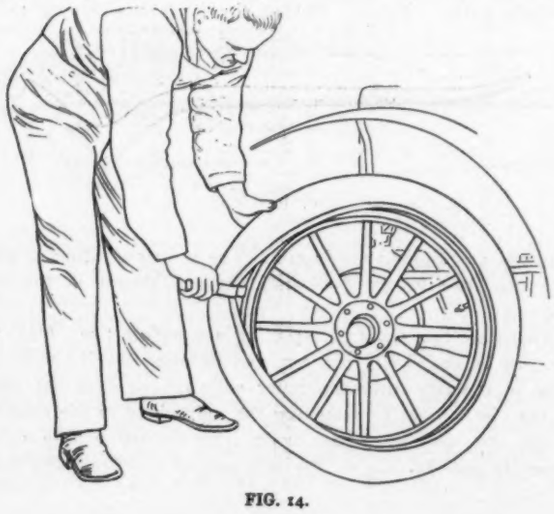


FIG. 14.

To repair a puncture in the air tube, select or cut a patch of pure rubber large enough to give a margin of an inch all around the cut. Clean the patch thoroughly with gasoline, also the tube near the cut, and roughen the latter with emery cloth or sandpaper. Do not hurry if you want a good job. Unless the patch has been specially prepared, it also will need to be roughened. Apply a coat of cement to both tube and patch—avoid excess. Let them dry not less than ten minutes, or until they become very sticky. Apply a second coat to each and dry as before. Then press the patch firmly on the tube, avoiding trapping air bubbles, and, if possible, lay a weight on the patch and leave for several hours, or the tube can be laid on a board or other smooth and flat surface and hammered lightly with an ordinary machinist's or carpenter's hammer. Care should be taken, however, that the hammer is brought down squarely every time; if not, it may cut the tube. Before using again, rub the patch with chalk so that exposed cement will not stick to the case. If the tube must be used at once, take care in replacing it that it is not stretched at the patch, which might cause the latter to pull loose; and see also that the edges of the patch do not curl up from the swelling due to absorption of the benzine in the solution. A patch carefully applied as instructed will hold air for a long time, while one put on hastily will soon leak.

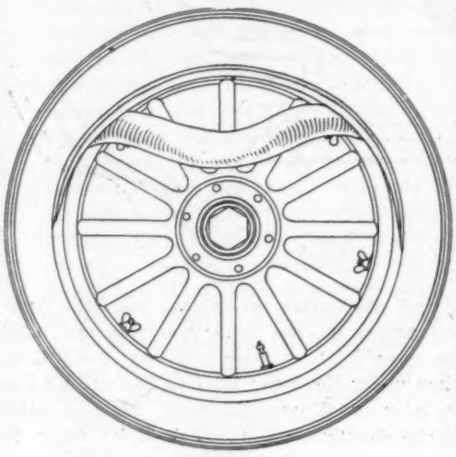


FIG. 15.

Treating a Punctured Shoe.

Before a punctured shoe can be used it must be treated so that the inner tube cannot blow through and so that the dirt and water cannot enter. This applies even when only a temporary repair is aimed at. If the cut is a small one, a piece of canvas anointed with solution and applied in the same manner as the rubber patch will be sufficient. This may be omitted if you are but a short distance from home and the cut is very small, but it is a bad plan, as both sand and water are ruinous to the interior of a tire.

If the cut is an inch or more in length, two thicknesses of canvas, or a special "cover plaster," which goes clear across the inside of the shoe and folds over the clinches, must be used.

For a cut two inches or more in length a permanent repair can ebst be secured by sending the shoe to the makers. A temporary repair may sometimes be effected by means of a rawhide patch cemented to the interior, or by the "cover plaster" already referred to, in connection with a leather strap wound about the tire after the clinch has been put in place. This strap should be wound "scale fashion," or with one edge lapping the next, when the tire has been pumped up to about fifteen pounds pressure.

In place of the strap a rawhide "manchon," or sleeve, Fig. 16, may be used. If possible, the ends of the manchon should have plugs so that water and dirt cannot enter at the junction of tire and rim. A repair made in this way may last a couple of hundred miles, but it is never permanent.

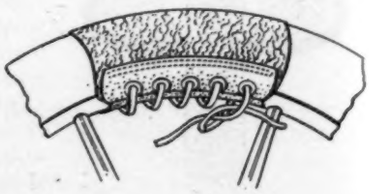


FIG. 16.

In conclusion we take pleasure in acknowledging the courteous co-operation of the Diamond, G & J, Goodrich, Goodyear, Continental and Michelin tire establishments in furnishing the originals from which the sketches in this article were drawn.

The best way to clean tires is with a wet but not dripping cloth, wiping them dry afterward.

CRANKSHAFTS IN AUTOMOBILE MOTORS

THERE is no single part of the gasoline automobile that is subjected to such varying and violent stresses as the crankshaft. No other part requires more painstaking care in its manufacture and no other one part costs so much in engines with three or more cylinders. The crankshaft is subjected to full pressure of the explosions in the cylinders practically without the cushioning effects due to frictional losses, and the sudden twisting stresses set up by the thrust of the explosions on the one hand and the inertia of the car on the other necessitate the employment of steel of the highest possible quality, distributed to the best advantage.

The manufacture of crankshafts is a most interesting process, and there are several distinct methods of doing the work. The most important differences are in the formation of the crankshaft in the rough, before it goes to the machines. One method, the various steps of which are well shown in Fig. 1, consists of taking a slab of steel, and "hogging out" the form roughly, using drills and cold saws for the purpose. The slab now takes the form shown in the second figure from the bottom. It is now put into a lathe and the journals turned to a little more than the finished diameter. The shaft is then put into a special lathe with an eccentric attachment, so that the crankpins are caused to rotate about their own axes and the crankpins are machined. Previous to this the webs have been milled down to size. Lastly the journals and crankpins are ground to make them as accurate as possible in roundness, in individual parallelism and relative parallelism. The rough slab, before the hogging out is commenced, weighs 220 pounds, and is worked down to a crankshaft weighing 62 pounds for a 45-horsepower engine.

A process that is more frequently employed is to make a forging of steel under heavy hammers, and finish this in lathes and grinding machines. A crankshaft forging is shown in Fig. 4, which shows how close to size a forging can be made. Still another process consists in taking a straight bar of steel, heating it to a suitably high temperature and bending it into the outline of a crankshaft. Power hammers and dies are then brought into play and the webs, pins and journals roughly shaped as in the ordinary forging process. The theory of this is that the grain of the steel is preserved by the bending. This process is employed in making the crankshaft shown in Fig. 4.

The crankshaft of a four-cylinder four-cycle engine usually has its cranks set at 180 degrees—on opposite sides of the shaft. In most cases the two end cranks are on one side of the shaft and the two middle cranks on the other. It is obvious that the two end bearings do not afford a sufficient support for a four-throw crankshaft, as the shaft for a four-cylinder engine is called, so there are always at least three, and sometimes five bearings for a four-throw shaft. A crankshaft with five journals is a complex-looking affair to the novice, but by following the center line through from one end journal to the other the intermediate journals will naturally separate themselves from the crankpins.

The parts of the typical crankshaft are the main journals at each end, the intermediate journals between the end journals, the arms or webs and the crankpins, connected by the webs to the journals. The journals are often miscalled bearings; properly speaking, the journal is part of the shaft itself, and the bearing surrounds it. The flange to which the flywheel is bolted is also part of the shaft, which is usually made of a single piece of steel. The flange for the flywheel is a modern development. At first flywheels were almost invariably keyed on the tapered end of the shaft and held from endwise movement by a large nut screwed up against the wheel on the shaft. It was found practically impossible to keep a flywheel tight on its shaft by this method, however, the enormous stresses set up being too much for the key, which became loosened and permitted the flywheel to move on the shaft; sometimes the key would shear off and leave the flywheel loose on the shaft. A flywheel bolted to the flange, however, is safely secured and should give no trouble.

The crankpins are, as a rule, of the same diameter as the journals. In five-journal four-throw shafts the crankpins and journals are usually shorter than in a three-journal shaft, because there are two extra bearings to be got into approximately the same length; so, in order to obtain the requisite bearing area, the pins and journals are made of greater diameter than in three-journal shafts. The webs or arms in a majority of crankshafts are of rectangular section; in a number of cases, however, a slightly oval form is adopted, and in a few instances the section is almost elliptical, as in Fig. 6.

A very important, but to the novice a very inconspicuous feature of the crankshaft is the filleting. In the angles where the crankpins and the journals join the webs, there are formed fillets—that is, the metal is not cut away to make a sharp corner, but is rounded off in a little concave arc. The reason for this is that if the

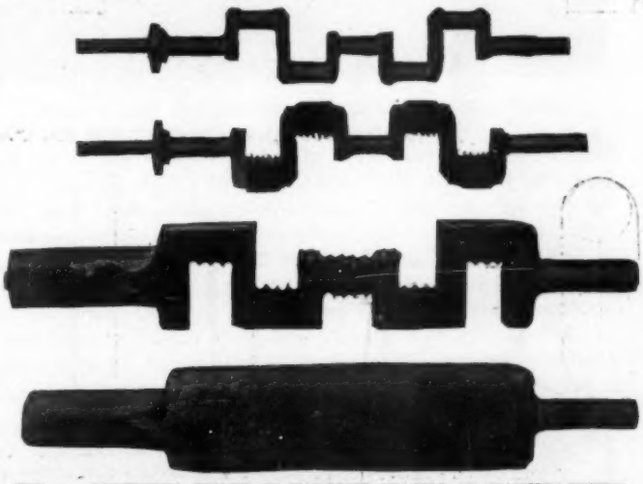


FIG. 1.—COLUMBIA SHAFT IN VARIOUS STAGES OF MANUFACTURE.

corner is left sharp the shaft is reasonably sure to break when subjected to an unusual stress, the break starting at the unfilleted angle. Incidentally, it may be mentioned that this is true not only of crankshafts, but of other parts subjected to stresses; it will be noticed that the angles of castings are almost invariably filleted. While this, of course, makes a neater, smoother-looking piece of work, the main reason for filleting is that the unfilleted part is a source of weakness.

Crankshafts for motors with two cylinders vary according to the design of the engine. A horizontal engine, with double-opposed cylinders, will have the cranks set opposite each other, without any center journal. If the cylinders are vertical and side by side the cranks are usually both on the same side of the shaft. In an engine with three cylinders the crankshaft differs in an important way from the shafts of engines having an even number of cylinders. The cranks are set at thirds—120 degrees apart. The shaft is forged flat, as for shafts with even numbers of cranks, and after forging is again heated and the cranks twisted round into their final positions.

An eight-throw crankshaft involves a repetition of the four-throw shaft. The shaft for an eight-cylinder will be like two four-throw shafts placed end to end, but with one set of four cranks turned at right angles to the cranks of the other set of four. With this arrangement the power impulses follow each other at intervals of quarter of a revolution. Eight-cylinder motors are rarely used for anything but motor-boats.

A six-cylinder engine has its crankshaft made as if two three-throw shafts were placed end to end and the cranks of one set of

three turned one-sixth of a revolution from those of the other set of three. There is a power impulse every third of a revolution with this arrangement.

Sometimes the spacing between the cylinders is such that the webs must be set at an angle from the vertical, so the crankpins will come under, or nearly under, the centers of their respective cylinders; an example of this is shown in Fig. 6. Another way is to make the crankpin part of the shaft longer than is necessary for the journal and use only part of it, leaving the unused part of the crankpin of larger diameter, as in Fig. 5.

The steel used in the manufacture of crankshafts in high-grade motors is of extraordinary strength. Nickel, chrome nickel and manganese steels are largely used, and the shafts made from these materials are of extremely great strength. For instance, the crankshaft shown in Fig. 2 is made of chrome-nickel steel having an elastic limit of 135,000 pounds to the square inch and a tensile strength of 225,000 pounds to the square inch. That is, a test piece of this steel can be subjected to a maximum pull of 135,000 pounds for each square inch of cross-sectional area, and when the pull is released the steel will return, like a piece of

FIG. 2.—CRANKSHAFT CUT FROM STEEL SLAB BY ELECTRIC VEHICLE CO. FOR 45-H.P. COLUMBIA CAR.

FIG. 3.—FIVE-JOURNAL CRANKSHAFT FOR KNOX AIR-COOLED TOURING CAR MADE FROM SOLID SLAB.

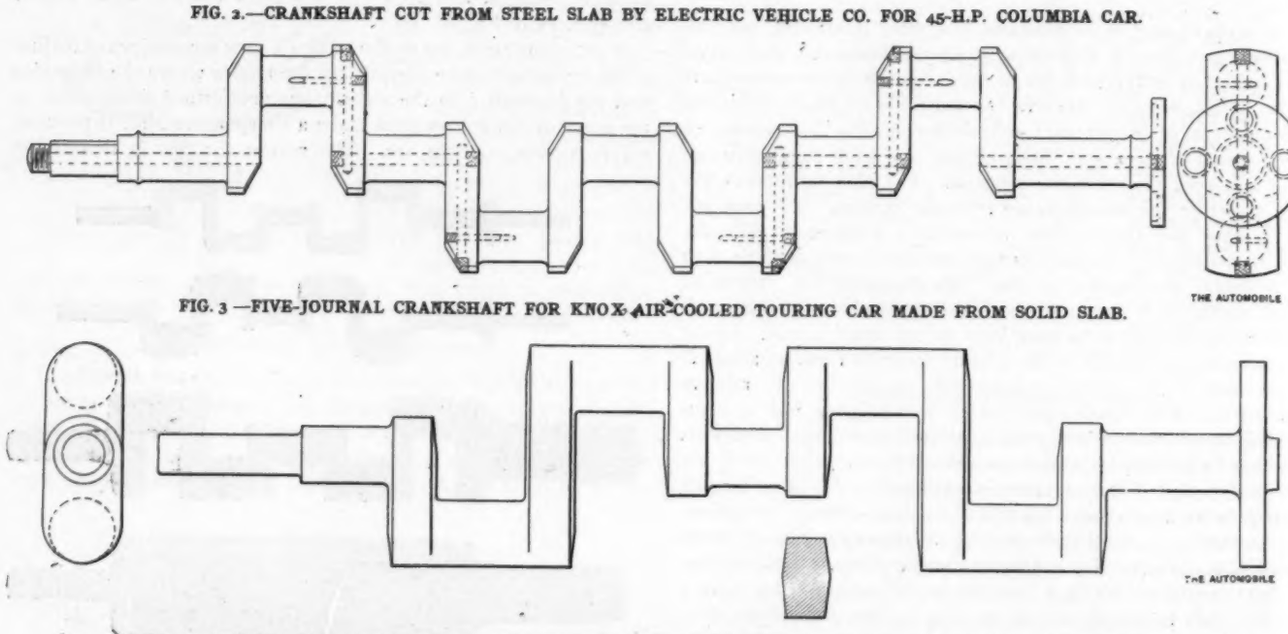


FIG. 4.—CRANKSHAFT FORGING MADE BY COMBINED BEDDING AND FORGING PROCESS FOR GEO. N. PIERCE CO.

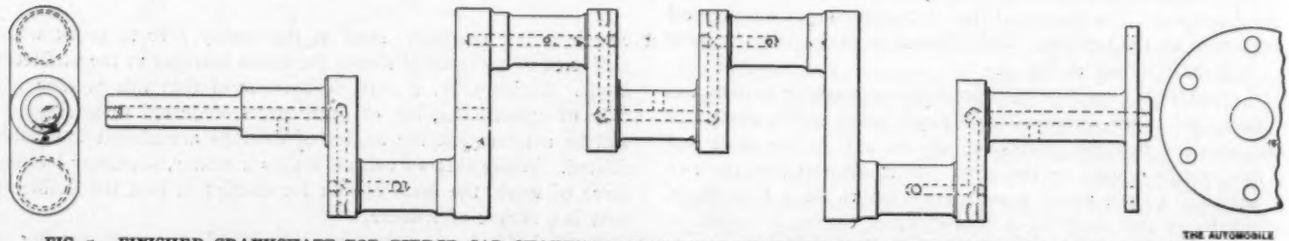


FIG. 5.—FINISHED CRANKSHAFT FOR PIERCE CAR SHOWING DIFFERENCE BETWEEN SIZE OF FORGING AND COMPLETED SHAFT.

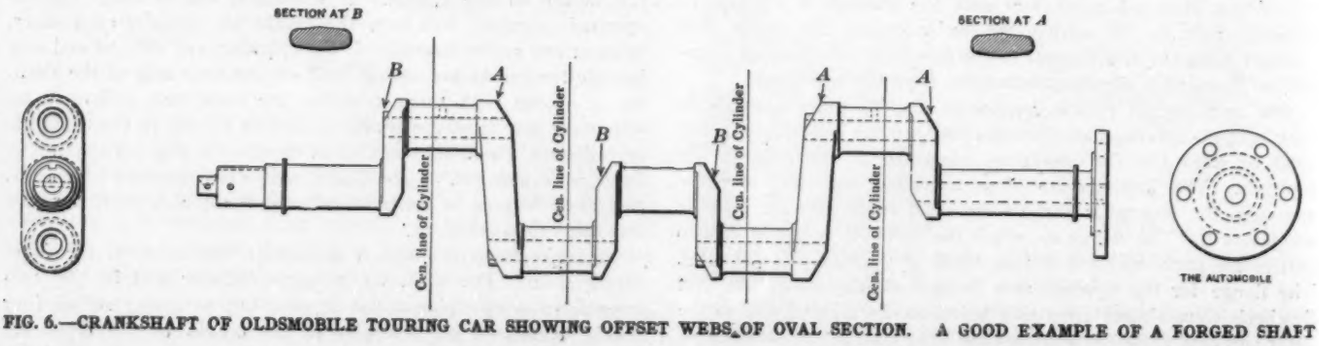


FIG. 6.—CRANKSHAFT OF OLDSMOBILE TOURING CAR SHOWING OFFSET WEBS OF OVAL SECTION. A GOOD EXAMPLE OF A FORGED SHAFT

rubber, to its original form and proportions, showing no distortion. This is the elastic limit. If the pull is increased to the point where the steel is broken, the maximum pull is called the tensile strength, in this case, as already stated, 225,000 pounds per square inch.

The heat treatment of these highly specialized steels is of the greatest importance, and must be carried out under the most favorable conditions. Usually, oil furnaces are used for heating the metal, so that the temperature can be regulated to a nicety, and can be measured by means of an instrument adapted to indicating high temperatures.

The crankshaft shown in Fig. 3 is made from a solid slab, and is subjected to a peculiar process after the rough shaft has been hogged out of the slab. The crankpins and journals are put under a steam hammer and hammered all round to condense and toughen the metal at these vital points. Before machining the shaft is oil-tempered and annealed.

Crankshafts are frequently lightened by having metal cut away from places where it does not add strength. The rounding and beveling of the ends of the webs disposes of useless metal. Not infrequently journals and crankpins are hollow, as in Fig. 6, and occasionally the webs themselves are bored out where extreme lightness is necessary. In many cases the shafts are drilled out for lubricating purposes. In Fig. 3 is a good example of forming oil ducts in the crankshaft. Holes are drilled through the main shaft journals, webs and crankpins, the holes intersecting, and screw plugs are put in, as shown in the drawings, where the drill comes through. The oil forced to the main bearings is carried through a hole in the shaft that at every revolution registers with the oil hole in the bearing. Each bearing oiler supplies oil for two cranks, one on each side.

Ball-bearing crankshafts are used in some engines, and shafts of this kind are shorter than those using plain bearings, owing to the small longitudinal space occupied by the ball bearings. The ball races are of large diameter and the balls very large. Friction losses are reduced, and the shortening of the shaft gives an opportunity to shorten the whole engine and to lighten it somewhat at the same time. In a few instances the ball-bearing idea is carried out to the extent of putting ball bearings in the crankpin ends of the connecting rods, so that there are no plain bearings at all on the crankshaft. This is even more unusual than the use of balls for the main bearings. The outer ball races are solid rings large enough to slip off the shaft over the cranks.

A REMEDY FOR SQUEAKY SPRINGS.

If your springs squeak distressingly and their plaint does not cease after a liberal oiling of the suspension joints, there is no cure but to dismount them and introduce a liberal amount of grease between the leaves before assembling and remounting. Before commencing operations, however, the car should be securely supported and blocked up to take all the load off both springs, leaving them in a natural position, so that they can be taken down and put up again without difficulty. When reassembling, put up all the pivot bolts with plenty of grease. Fill the holes into which these have to be introduced, and then thrust the eight bolts through. If dismounting the springs is thought to be too strenuous a task, oil can often be sufficiently introduced between the blades in the followni manner: Block up the jack securely, so that when at its lowest point it can just be introduced between the blocking and the lower flange of the frame at the rear angle on the side of the spring first to be operated upon. Then screw up the jack until the driving wheel tire is raised clear of the ground. This will cause the weight of the wheel and half the axle to depend from the body through the spring, and the leaves will probably separate from each other sufficiently to permit of oil being squirted between them. The effect of the greasing at first or the oiling as last described will greatly add to the docility of the springs, making the car more comfortable, and will certainly cure the squeaking, which sc keenly annoys the motorist.—*The Autocar.*

TWO INTERESTING CONNECTICUT PICTURES.

Doings of prominent authorities on matters mechanical always present an interesting phase to the automobilist. The visit of Dugald Clerk, the noted English gasoline motor expert, to this country, where he is engaged in making exhaustive researches in the interest of the Selden patents, has been productive of many interesting experiments, one of which is illustrated in this column. The photograph was taken in one of the experimental rooms of the factory of the Electric Vehicle Company at Hartford, Conn.

DUGALD CLERK CONDUCTING A MECHANICAL EXPERIMENT.

Standing in the foreground by the scale pillar, and the central figure of the picture, is Mr. Clerk, who holds a number of papers in his hand. Behind the scales, leaning against the wall, with his hat on, is George B. Selden, to whom the famous Selden patent was granted, and on his left is his son, Henry R. Selden. To the extreme left of the picture, the man with his coat on, standing with his back to the wall, is Rudolph Riege, a mechanical enginner of the Electric Vehicle Company. Standing to the right of the picture, with his hands behind him and with vest unbuttoned, is Hugo C. Gibson, of London, another noted mechanical expert,

OLD AND NEW TRANSPORTATION AT THE SELDEN HOMESTEAD.

and in the background are a number of heads of departments at the factory, who are watching the experiments.

The second picture was taken at the homestead of Mr. Selden, at Hadlyme, Conn., and is illustrative in contrasting the past and present methods of locomotion. Mr. Selden is seated in the automobile and his son is perched on the driver's seat of the ox cart, guiding the patient pair of splendid animals, whose ancestors were the original and primitive force of locomotion employed by man. The setting of the picture is typically that of New England, with a wealth of harmonies mellowed with two centuries of age that surrounds the farmhouse.

IMPROVED G. E. MERCURY ARC RECTIFIER.

An improved mercury arc rectifier has been put on the market by the General Electric Company in which certain modifications of the form of the apparatus have been incorporated as the result of experiments in the practical use of the original model. The latter is familiar to our readers, having been described at length and illustrated in these pages. In automobile work the apparatus is used chiefly for charging the storage batteries of electric vehicles in localities where a supply of alternating current, but not of direct current, is procurable.

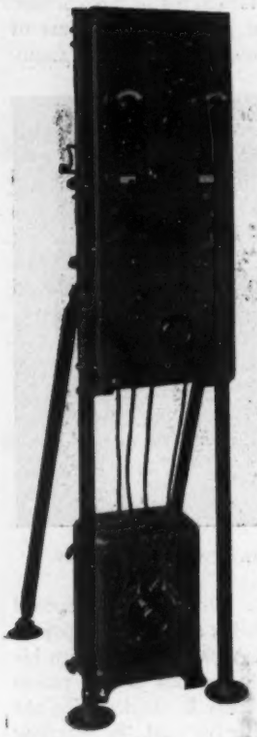


FIG. I.

Fig. 1 is a front view of the rectifier set up ready for use when connected to the line from which the current is drawn. The panel carried on pipe supports is equipped with such switches and instruments as are needed for the efficient operation of the rectifier. At the top is a double pole, automatic overload circuit-breaker connected in the direct current line which not only protects the rectifier tube against any sudden overload, but also the storage battery of the electric vehicle to which it is furnishing direct current. The instruments comprise an ammeter of a size corresponding to the maximum current obtainable from the rectifier with which it is mounted, and a voltmeter varying in capacity according to the maximum voltage of the rectifier. The only other switches on the panel are a load switch of special design, on the right, an alternating current line switch, on the left, and the reactance switch below.

It will be noted from Fig. 2 that the rectifier tube is mounted on the back of the panel where it is less liabel to breakage from accidental causes, as persons striking against it or the like. The tube is mounted in a holder which is connected to a small handle in front of the board. By turning this handle slightly from right to left, the tube will be rocked and the small starting arc will form. At the bottom and on the back of the panel is a small reactance coil. This is connected in series with the alternating current line and has taps brought off from it which are connected to the buttons on the regulating switch, as shown in Fig. 1. This reactance is used for obtaining a fine adjustment.

The compensating reactance, complete with a regulating switch, is mounted on the floor just below the panel. The function of this part of the outfit is to obtain a neutral point for the rectifier which will furnish the negative pole of the direct current. On this compensating reactance taps are brought out to the dial switch before mentioned, by means of which a rough adjustment of current may be obtained before starting the tube. When the same machine is being charged each day this rough adjustment may be fixed once for all, and only the reactance coil on the panel need be used.

FIG II.

The method of starting the new panel is as follows: Set the dial switch on the compensating reactance to the approximately correct point (readily found after the tube has been started the first two or three times), and set the regulating reactance on the panel at the lowest point. Close the circuit breaker, and the alternating current line switch shown at the left of the panel in Fig. 1. Hold the starting switch on the right in the starting position with one hand and turn the small starting handle with the other end, and the tube will start after one or two shakes. The starting switch is arranged with a spring so that it is normally closed in the load position by a spring. On releasing the starting handle the starting switch will therefore return automatically to the load position and the rectifier will be sending direct current to the load. This load current may be regulated after starting by means of the reactance switch on the panel, which gives a wide range of adjustment without any appreciable sacrifice in efficiency. To any one familiar with the old type of panel this method of starting will be seen to be extremely simple.

The complete apparatus, with the exception of the reactance beneath the panel, is arranged to be shiped as a unit, so that the outfit may be operated just as soon as the pipe frame can be screwed to its supports and the connections made.

CLERK ON PRE-IGNITION TROUBLES.

In the course of an extensive discussion of the internal-combustion motor, in a paper read before the Institution of Civil Engineers, Dugald Clerk says: "This question of pre-ignitions limits the engine designer in many ways, and it becomes absolutely necessary to preserve the inflammable mixture during compression at a temperature below its igniting point. Any inflammable mixture only requires to be sufficiently compressed to ignite without any other means of inflammation. Unfortunately, the conditions of maximum economy in engines are also conditions which favor pre-ignition. In small engines pre-ignitions are rare and are not dangerous; in large engines they are unfortunately somewhat frequent, unless mean pressures be kept down and extensive cooling be adopted; and when they do occur they are somewhat dangerous. It is unfortunate, also, that no exact knowledge exists as to the temperature of ignition of different gaseous mixtures, and the engineer has been obliged to accumulate very considerable knowledge of the subject by the simple process of pushing compression with each gaseous fuel as high as he dare without producing pre-ignition. If with any fuel he produces pre-ignitions, then he at once alters the compression space and other parts so as to reduce the compression.

"It is found, for example, that with weak gases of the producer type, such as blast-furnace gas, compressions may be carried very much farther than with very inflammable gases, such as town's gas or natural gas. In general, it may be taken that gases which are rich in hydrogen are highly inflammable, and pre-ignite readily. Such dangerous mixtures can be compressed only to a moderate degree without risk. It has been found, for example, that in gasoline engines the compression can be carried higher than in heavy-oil engines, and that with some kinds of heavy oil compression must be lower than with other kinds. On the other hand, it appears that, with alcohol as the inflammable material, compressions can be carried very much higher than with gasoline.

"At present the engineer knows, from previous experience, that if he carries compression beyond a certain limit for a certain gas he will at once make his engine relatively unworkable, owing to frequent pre-ignitions. The great limiting element in all internal-combustion motors, so far as high compressions are concerned, is this one of pre-ignition. Pre-ignitions are due to many causes; sometimes to a small incandescent part of metal within the cylinder; sometimes to a porous surface of metal within the cylinder; sometimes to a hot piston-end; sometimes to an overheated exhaust valve; possibly to charred matter or carbon deposited in the cylinder.

LETTERS INTERESTING AND INSTRUCTIVE

Simplifying the Circulation of Water in Cooling.

Editor THE AUTOMOBILE:

[350.]—I am having trouble with the water circulation of my car, most of the connections being hose. Diagram 1 represents the present arrangement. It is giving me trouble from the natural tendency of rubber to soften and twist near the engine heat, and besides does not appeal to me as being on a sound basis. As I understand the auto cooling plan, it should be the reverse of ordinary hot

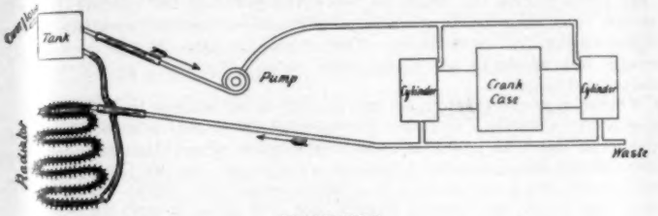


DIAGRAM I.

water heating—that is to say, we want a cool heated water and not to heat cold water. If this is true, my present piping from the bottom of cylinders to the bottom of radiator should be reversed, so that the cooling of the radiator would bring the cooler stratum to the bottom before going to the tank. Diagram 2 is my idea (mistaken, it may be) of what should be the arrangement. In this

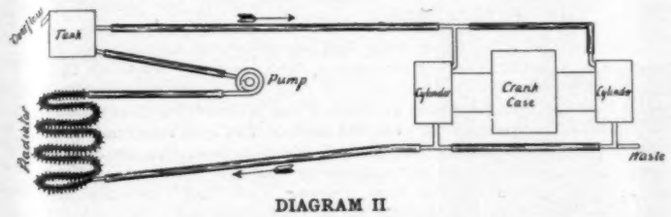


DIAGRAM II

there are but two lines between the pump and cylinders and the tank and radiator, while my present assembling gives me four. In addition the proposed change makes the lines almost all of rigid piping supported on the frame, save only where shaded, and those for purposes of convenience in cleaning the system. Of course it is the intention to make all couplings at cylinders and pump with unions. Am I correct in my idea that the cold water should enter the top of cylinders, as well as having the hot water returning from cylinders enter the top of the radiator?

DR. JAMES H. WROTH.

Albuquerque, New Mexico, July 17.

Your diagram and your conclusions are quite correct. Cold water should go in the top of the cylinders, as near to the exhaust valves as is practical in ordinary cases, though some of the foremost automobile engineers strongly advocate introducing it just beneath the exhaust valves, in which case it tends to rise through the jacket in a natural manner as it is heated. From the water jackets the water should be conducted to the radiator and the tank, and thence to the pump—after it is cooled as much as is practicable. Hot water from the cylinder should enter the top of the radiator, since its natural tendency is to descend as it is cooled. Rubber hose of good quality should give no trouble in a cooling system in which the temperature does not rise higher than the normal 180° to 200° F. Foreign cars of unquestionable quality, costing up in the five figures, accept this construction as standard, and the engine heat should not deteriorate rubber hose through which water is constantly circulated, though it is wisdom not to have the hose approach too close to the cylinder.—more as a safeguard against overheating than as a necessity for normal working. However, your idea of using soft, thin-walled piping, possibly of brass, and capable of being bent, is very good. In bending such pipe, fill it with melted rosin to keep it from caving in at the angles. The rosin will have to be remelted and reharden ed from time to time as the bending progresses, unless only a slight change of direction is required. Be sure to have all piping of liberal dimensions and avoid sharp angles. Many cars have been built with piping that is too small, in connection with circulation that is too slow. If, however, you have had no trouble, do not worry over this point.

The Six-Cylinder Question Again Bobs Up.

Editor THE AUTOMOBILE:

[351.]—Is the recent tendency towards the building of 6-cylinder engines a real advance or simply a fad, and what are the principal advantages and objections of the type? ORLANDO P. BAKER.

Buffalo, N. Y.

Undoubtedly there is a tendency on the part of a certain class of the motor-purchasing public to take up the new and much-recommended departure, regardless of whether it is meritorious or not, but this fact can hardly be held to discount the great advantages of a properly designed six-cylinder motor. Chief of these, as compared with the four-cylinder, are the greater frequency of impulses, with consequently smoother and better distributed turning effort; the better mechanical balance, permitting a lighter flywheel; and the reduction in the size of the individual cylinders, which simplifies cooling and reduces all stresses. Against these advantages the four-cylinder advocates argue the greater complication, which they claim is not offset by proportionate gains. The answer to this is that the six-cylinder construction involves duplication rather than complication, reducing the likelihood of utter breakdown instead of increasing it, which, perhaps, is a better phrase than it is argument. Similar claims and counterclaims can be adduced in some number, without very definite progress toward a solution of the problem. Each user must decide for himself what value to accord the facts. These might be summed up as follows: A six-cylinder engine, other things being equal, develops its power in lighter and evener-spaced impulses, for which reason it runs smoother and is not as hard on tires, transmission, etc., as the four-cylinder. It is also somewhat easier to crank, and because of its lighter flywheel, need weigh no more than the four-cylinder. A four-cylinder engine, on the other hand, costs less than the six-cylinder, imposes a less tax on the ignition equipment, takes less longitudinal space under the bonnet, and runs smoothly enough to satisfy thousands of critical users.

This Correspondent's Runabout Cranks Very Hard.

Editor THE AUTOMOBILE:

[352.]—I have a small runabout which has been giving me trouble in cranking. When the engine was new it cranked easily, but now can be turned over only with the greatest exertion. Can you tell me the cause and the remedy? A. P. JOHNSON.

Muskegon, Mich.

With the meager details you have given, and without knowing the make of the car, it is difficult to diagnose the trouble positively. If the engine seems to run all right when it is started, without hot bearings or any signs that the cylinder is improperly lubricated, and there is some device for releasing the compression at starting, possibly this is out of order. There are several small runabouts on the market in which the compression is released by a small pin that supplements the action of the exhaust cam to the extent of opening the exhaust valve with double the normal frequency. This pin wears off rather easily, especially if the engine be left running with it in action. Possibly something of this sort is the secret of the difficulty.

Depends Upon Conditions and the Way the Car is Run.

Editor THE AUTOMOBILE:

[353.]—In going up-hill, should the spark always be retarded, and, if so, why? C. H. B.

Usually it is correct to retard the spark in climbing hills, but this is so not because the car is going slower, but because the engine is. The spark always should be advanced and retarded with acceleration and retardation in the engine speed. Consequently, if the car has power enough to be speeded up and "rush" the hill, it may be necessary to advance the spark. Also, if it is necessary to drop to a lower gear, thus speeding the engine while slowing the car, it is necessary to advance the spark. Otherwise, as when the hill slows a car, but does not necessitate speed changing, the spark should be retarded.

1907 Packards Will Be Sold Through Packard Dealers.

Editor THE AUTOMOBILE:

[354.]—It has recently been brought to our attention by several dealers that rumors are being systematically circulated to the effect that the entire 1907 output of the Packard factory is being bought up by a sindicate whose object is to control the market, and because of the great demand which exists for Packard cars hold them for a premium, and thus realize a very handsome speculative profit.

We desire to at once correct the impression which such a rumor will make, and we hereby go on record to the effect that the entire output of 1907 cars will be sold only through regularly established Packard dealers, as in the past. Furthermore, that there will be no dealers added to the Packard selling organization for 1907, because of the fact that the increase of demand in territory where the line is already established is greater even than the increased production of the factory, and feeling, as we do, that old dealers, who have done business with us in the past, are entitled to first call upon our product, we are reserving the entire output of 1907 Packards for these old dealers and will be unable to allot any Packards to new dealers.

Notwithstanding this policy, we will be unable to supply the old dealers with as many cars as are needed to meet the demands in their respective territories.

The Packard Motor Car Company will continue to spare no efforts or pains to the end that Packard cars may be placed in the hands of individual owners at regular advertised prices, without any premiums or bonuses whatsoever, and we believe we have provided a means of effectually preventing any speculative dealing in Packard cars for 1907, either by individuals or syndicates.

PACKARD MOTOR CAR COMPANY.

Cleveland, O.

Pounding and Pre-ignition.

Editor THE AUTOMOBILE:

[355.]—There are two phenomena in an engine both of which are called pounding, but which are distinguished from each other by their different sounds. The first kind is a throb or thump, often severe enough in one and two cylinder engines to shake the whole car. It is caused by the resistance of the piston head to the violent impact of the particles of expanding gas. If the resistance of the piston head be small, as in the case of a light load and rapidly running engine, it is not noticeable; but if its resistance be great, owing to the inertia of the moving parts or the load on the engine, it is felt and heard at once. When the gas is ignited while the piston is still traveling toward the cylinder head, the particles of the gas and the piston are then traveling in opposite directions, and the violence of the impact becomes very great, resulting in a pronounced pound of this character. This is the pound due to pre-ignition, and is exactly similar to that which occurs when the engine is under a heavy load. The other factor governing the magnitude of this variety of pound is the velocity of expansion of the gas, whch depends on the degree of compression, the opening of the throttle, and, within limits, the leanness of the mixture. A mixture which is rich in gas burns with comparative slowness and does not produce the concussive effect of which this pound is the result. This throb in an engine should be avoided as far as possible, as it is an evidence of great stress in the engine and transmission system. It is bad policy to use a gear high enough to prevent the engine from running smoothly, if it can be avoided; and if more than two speeds forward are provided, the car will move slower in addition to straining the whole mechanism.

The second kind of pounding is a distinct, sharp, metallic knock, which is due to loose bearings, permitting a separation between the shaft and its bearing at the moment that the power impulse is to be transmitted from one to the other. It varies a little in sound with the looseness, the position and the kind of bearings, but its character is always the same. It is simply the sound produced by one metallic surface striking another. Although, even in very loose bearings, the distance between these surfaces is slight, the force of the blow is sufficient, under certain conditions, to produce a distinct sound. These conditions are: first, a powerful impulse transmitted to one member of the bearing, which is met by great resistance to further transmission by the other when they come in contact—precisely as in the case of a hammer and anvil, a loud sound being made only when a powerful blow is struck on an anvil fixed in a rigid position; second, the separation of the shaft and bearing at the moment of the impulse—for if they are already in contact no sound will be made. The practical realization of these conditions is found in an engine when inertia or a heavy load resists at every point the transmission of power, and a pound of the second kind always accompanies a pronounced pound of the first kind if the bearings are loose, except when the pound of the first kind is produced by pre-ignition.

There seems to be a popular misconception that a metallic pound, which I have called a pound of the second kind, is a sign of pre-ignition, and this leads to serious abuse of the engine: first, because it causes disregard of the warning given that something is loose; and second, because it conduces to running with a late spark with all its accompanying evils. Pre-ignition will not cause a metallic pound, even though the bearings are loose, provided the compression is fair. The reason is simple. The compression, as long as the piston is moving toward the cylinder head, holds the shafts and their bearings tight together. If ignition occurs before the piston reaches the end of its travel, a thump or pound of the first kind will be produced, as described above; but, since the parts of the bearings through which power is transmitted have already been forced into contact by the compression, no metallic pound will result. The moment the crank reverses the direction of the piston, its inertia, tends to make it continue in its former direction, and this force allows the shaft to leave the point in its bearing from which it is to receive its power impulse unless the bearings are tight enough to prevent it. The charge is now ignited and the shaft and bearings are once more driven together, producing a metallic sound.

I have repeatedly stopped this pound in an engine by advancing the ignition enough to cause pre-ignition. The only reliable way to time the spark is to advance it to the point where the engine will develop the most power. This is a certain test, for pre-ignition will invariably rduce the power. If at this position the engine thumps, it is a sign of an over-driven engine; but if it gives a metallic pound, something is certainly loose which should be tightened before the bearings are hammered out of shape.

J. S. LAPHAM.

Northville, Wayne County, Mich.

An Automobile Party's Experiences on Indiana Roads.

Editor THE AUTOMOBILE:

[356.]—C. M. Shepherd, wife and daughter, of Owensboro, Ky., and Miss Anna M. Fowler, of Omaha, Neb., recently made an interesting test run in a Cadillac light touring car of 1906 single-cylinder type through southwestern Indiana, from Evansville, that state, to Rutland, Ill., a distance of over 350 miles. The run was made under most unfavorable conditions, including, of course, the usual wilful man-killing information as to where to find the bad roads and deep mud, when asked for the best routes. This fact has been made mention of in The Automobile on several occasions.

The party left Evansville at half past nine on a Monday morning, making the run to Princeton, Ind., in a little over one hour, and thence to Vincennes, Ind., by a route through which they were misdirected, their road map having been lost. This route took them through twenty-five miles of mud three to six inches deep, through which they were obliged to plough on low gear. The run from Vincennes was much better, although roads were very rough over a considerable portion of the route. It took the party fifteen hours to make Rutland, Ill., a distance of 280 miles. The trip from Vincennes was enlivened by a "highway" robbery which was made at White River Ferry, just north of that city. At this interesting point a team of horses with a wagon load of corn is transported across the river for fifty cents. Misjudging the party of automobilists for millionaires, the ferryman demanded $3 for the honor of floating them over via an old cable system, in vogue at the time of our forefather Adam.

The party reached Rutland with the Kentucky air still in the tires. The commutator spring wore in two while in the Indiana mud field, and for a time the situation looked grave, owing to the fact that Mr. Shepherd was not supplied with an extra one. He was equal to the occasion, however, as he made a spring out of a piece of steel that stood for good service the rest of the trip. When asked where in the world he procured the piece of steel at that particular moment, Mr. Shepherd replied that, after some hesitation, mention of a "corset steel" was made by some member of the party, and we presume that he found one of those articles in Indianapolis or Danville.

In speaking of the hills encountered, Mr. Shepherd stated that his car did not speak that language, and knows nothing about hills, but that he saw numerous humps in the roads, which obstructed the view for a few moments. The return trip will be made with the same Kentucky air in the tires and without any adjustments to the car, as far as is known at present.

A MIDDLE WEST SUBSCRIBER.

Rutland, Ill.

The automobile figures largely in the government of Newcastle county, at least in the administration of the office of coroner, for the chief deputy coroner, James T. Chandler, uses one continually and finds he cannot get along without it. He has had one for several months, and a few days ago found it so valuable that he purchased a larger and more powerful one.

THE PACKARD PRESENTS ITS 1907 MODEL

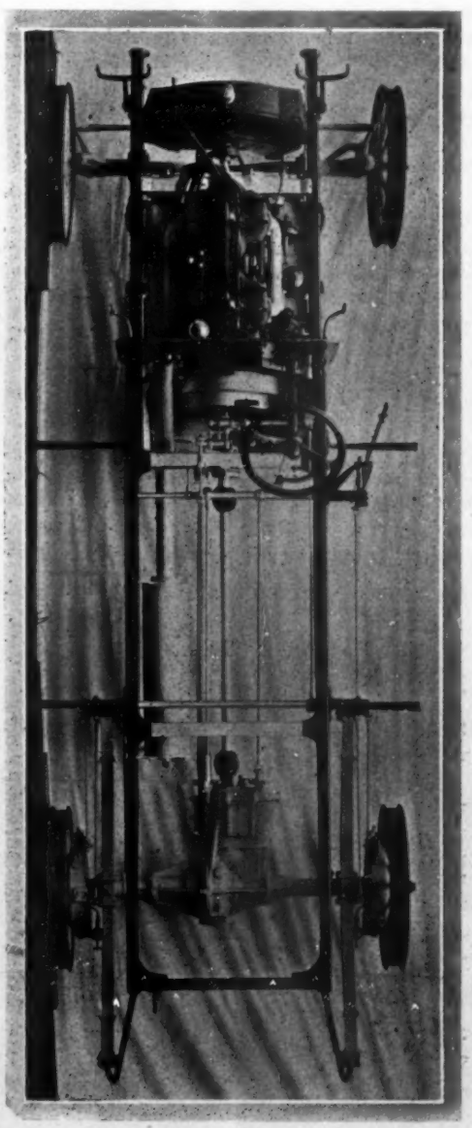
LIKE its forerunners of several seasons past, the 30-horsepower Packard, the 1907 model of the Packard Motor Car Company, of Detroit, is the one car of the year upon which all the resources and energies of the entire Packard organization will be centered. "Packard 30" is the name by which it will be known, and it is the matured development of Packard 24 which preceded it. With the newly completed additions, containing in round figures 100,000 square feet of floor space, the Packard manufacturing plant now utilizes 325,000 square feet of space devoted to manufacturing, and will thus be able to easily make and deliver on schedule time 900 cars for the coming season. The several experimental and testing out cars have been built for some time, and all minor changes in their development have been made. Stock and material for all parts of the new cars, and to cover the entire season's output, has been purchased, and the factory at this writing is very well started on actual production for next season.

The Packard 30 is furnished as a standard touring car with large, luxurious body, having ample room for at least five passengers, and a liberal supply of baggage to be carried when touring. As a "selfish" car and affording the acme of luxury, it is also turned out as a runabout, which appears still more sporty and snappy looking than even the Packard 24, the high-powered runabout style for 1906. Also a luxurious and magnificent limousine, embodying all of the very latest ideas and conveniences, is included in the line. Of course the fundamental principles involved throughout all three of the cars are the same, and the complete chassis for the standard car and the limousine is the same. For the runabout suitable changes are made to insure proper disposition of weight, to preserve correct balance, comfortable riding etc. For the runabout the wheelbase is reduced, the radiator and the motor are both carried further back on the frame, the length of the bonnet is increased, the steering column is raked at a considerably increased angle, the dash is of individual style, and the driver's seat further back and lower down than on the touring car. In this way a harmonious and effective model is produced and better results obtained than by simply placing a runabout body on a standard chassis.

Aside from greater power and consequent constructional enlargements, the Packard 30 differs from the Packard 24 only in occasional detail. Like the smaller car of the past season, it receives its name from its horsepower rating, established on the French basis, although the actual brake horsepower, according to American standards, is much more than thirty, it being said to be between 55 and 60 brake horsepower.

The running gear is almost identical with that of 1906, the chief difference being an increase of wheelbase to accommodate the larger motor, the measurement now being 121 3-4 inches. The additional length, however, is entirely in front of the dash, making the bonnet longer, but leaving the frame, from the dash to the rear, the same as in the Packard 24. The tread is, of course, 56 1-2 inches, or standard.

The frame itself is of cold-rolled pressed steel of the same channel section system as last year, with the top and bottom flanges of the side bars extended inwardly at suitable points to form integral gussets for the reception of the cross members, which are also of cold-rolled pressed steel. Altogether there are four cross members which complete the frame, there being no sub-frame. The flanges of the side bars have been increased in width 1-4 inch, making them now 2 inches wide by 5 inches deep. The frame is supported and suspended exactly the same as heretofore upon four semi-elliptic springs, 40 inches long in front and 56 inches long in the rear. The springs are shackled in the usual manner and furnished with clips to control the action of the leaves. The front axle is of seamless steel tubing as heretofore, with a reduced depression in the middle, and an increase of 1-4 inch in diameter, it now being 2 1-2 inches. The steering knuckles are of the same general design but increased in size, being heavy forgings fitted with self-seating and adjusting ball bearings. They are arranged with the jaw above the center of the axle itself, dropping the axle in relation to the wheel center to permit of low spring suspension. The steering connecting rod is in front of the axle as previously, and is attached to the knuckle levers by jaw ends arranged to furnish an exceptionally wide and durable bearing.

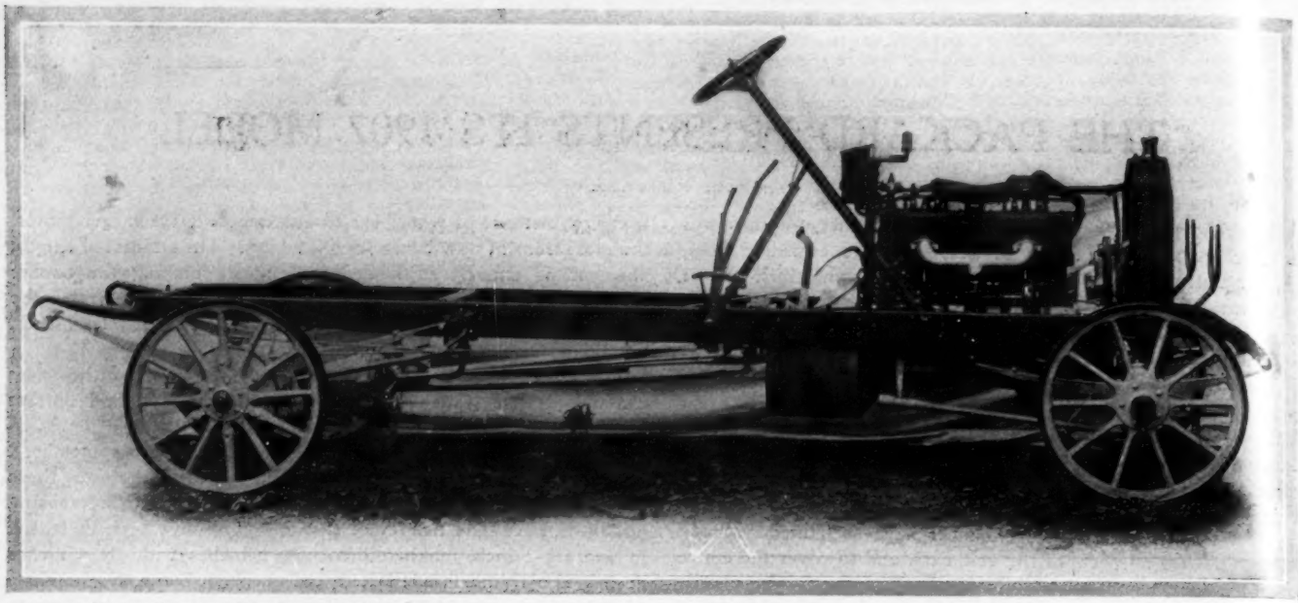


TOP VIEW PACKARD 1907 CHASSIS.

The front wheels are 34 inches in diameter, of the artillery type, and have the usual Packard peculiarity of ten spokes. Instead of running on roller bearings, as last year, they are now fitted with imported Hess-Bright ball bearings. They are equipped with 4-inch tires. The rear wheels are 34 inches in diameter, but have twelve spokes, and are fitted with 4 1-2-inch tires.

The steering gear is the same worm-and-segment system as formerly used, the gear and segment being forged integral with their respective shafts to eliminate opportunity for the occurrence of looseness. The steering column is inclined slightly more than heretofore. All steering connections fitted with oil cups.

The motor is similar in general design to the Packard 24, but examination discloses several detailed changes. The bore has been increased to 5 inches, while the stroke remains 5 1-2 inches. The cylinders are cast in pairs, and as is customary in Packard construction, the castings and also the castings for the



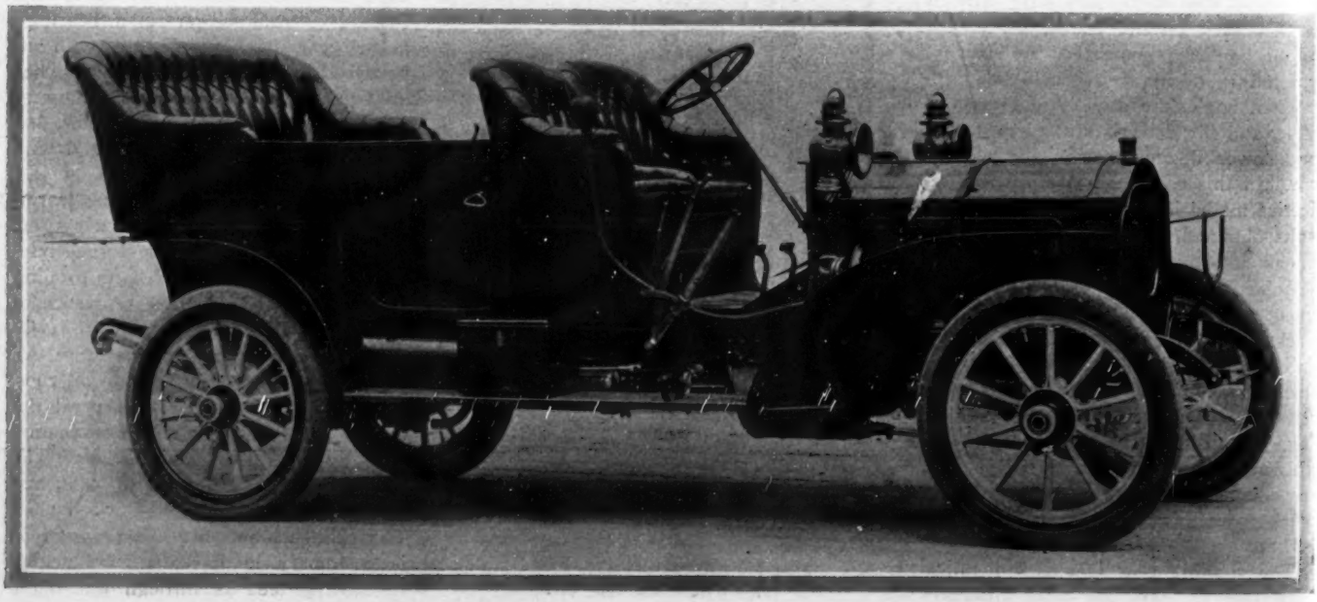
SIDE ELEVATION OF THE PACKARD CHASSIS, 1907 MODEL, 30-HORSEPOWER.

piston and piston ring blanks are made in France and shipped to the Packard factory in the rough, where all machining and finishing is performed.

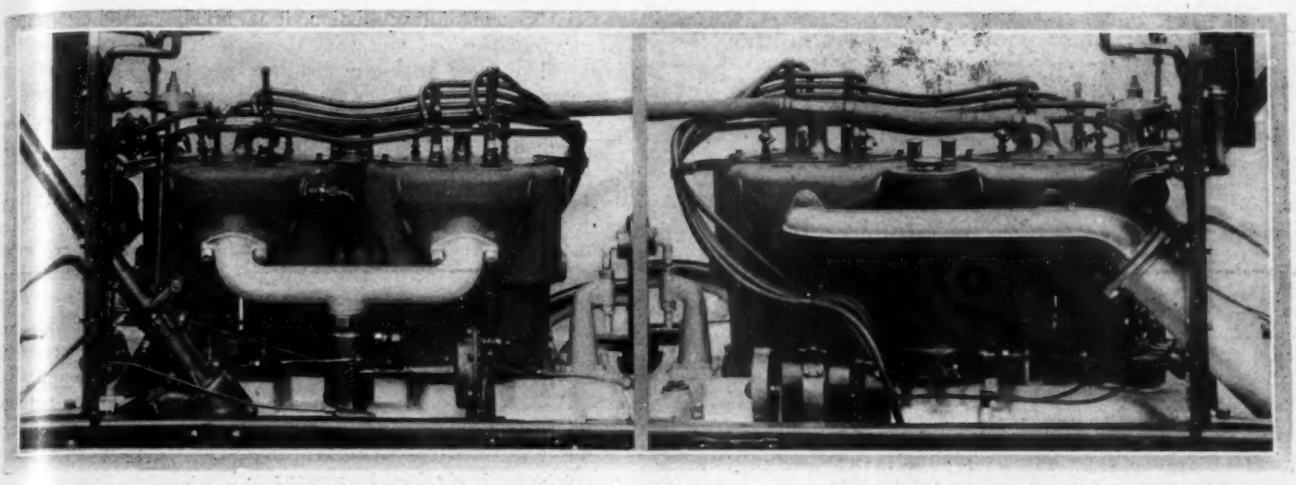
The inlet and exhaust valves are on opposite sides of the cylinders, as in the Packard 24, but are slightly increased in size to harmonize with the increase of cylinder volume. The valve chambers are raised and are tapered at their lower portions to reduce weight, and instead of presenting the appearance of a decided dome as in the case of the Packard 24, the entire top of the cylinders and valve chambers is substantially flat. All valves are, of course mechanically operated from camshafts inclosed within crankcase fully protected from dirt and certain of ample lubrication. The pistons are of typical construction, each having four ground rings. In the manufacturing processes the pistons, cylinders and rings are run together in the factory under belt power with a suitable polishing agent, thus giving them a highly lapped and perfected surface.

The crankcase is of cast aluminum and made in three parts in very much the same form as in 1906. The uppermost part forms the engine base and has end extensions, which rest directly upon the side bars of the main frame to support the motor. These side bars are connected with a horizontal web, which forms a bed closing the space between the motor and the frame, and greatly stiffening the motor base. This section of the crankcase carries the camshafts and all of their bearings, also the crankshaft and all of its bearings. The central section is secured to the uppermost one along the crankshaft center line, and is attached by several studs and nuts, and when in place secures the crankshaft and all of its bearings in position. The lower section serves as a cover and entirely closes the crankcase, and when in place serves as an oil well, and when removed permits ready access to the entire contents of the crankcase. The crankshaft is longer and also heavier than in the Packard 24, but it is of the same design and is made from high carbon open hearth oil tempered steel. All bearing surfaces are ground and the entire crankshaft is entirely machine finished. The shaft runs on three very liberal sized bearings, which are bushed with Parsons white bronze, as in 1906. The connecting rod bearings are also bushed with the same material. All of the cams, cam rollers, etc., are contained within the crankcase and fully protected and lubricated.

All of the camshaft and time gears, together with the gears driving the magneto and the water pump, are contained in a separate oil-tight compartment, constituting an integral part of the



PACKARD TOURING CAR, 1907 MODEL, FULLY EQUIPPED FOR ROAD SERVICE.



THE 1907 PACKARD MOTOR FROM THE INLET SIDE.

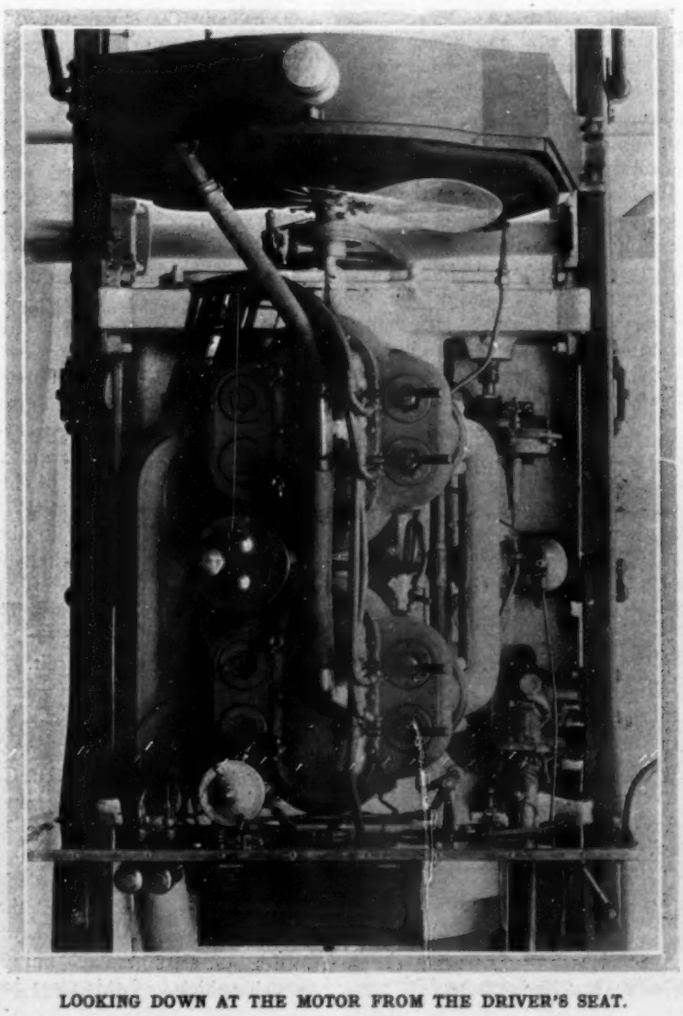
THE 1907 PACKARD MOTOR FROM THE EXHAUST SIDE.

engine base. These gears are made from bronze and fiber running together, the fiber gears being carried on bronze webs, and all are so disposed as to give correct meshing relations between the different materials to produce the best results in quiet running and durability.

Motor appurtenances are similar in character to those of the Packard 24. The cooling is of the standard Packard positive circulating system, comprising water jackets cast integrally with the cylinders. A gear-driven gear pump and a tubular combination radiator and tank, with forced draft produced by belt-driven fan adjustably supported upon the front of the motor base.

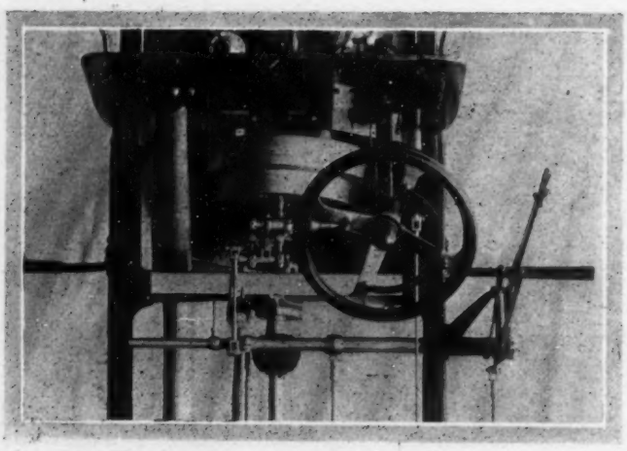
The carburation is a water-jacketed carbureter of Packard design, placed low down and close to the right-hand side of the cylinders. It has the usual float feed with copper float, and single vertical aspirating nozzle. The mixing chamber is tubular and vertical, and in its upper portion is placed a simple butterfly valve throttle. In addition to the primary air inlet through which air is drawn upward around the aspirating nozzle, there is an automatic poppet and auxiliary air valve, adjusted to open at a certain degree of suction in order to maintain uniform mixture at high speeds. This is different from the usual construction of such valves, in that the spring tension is regulable by a sliding wedge which is controlled by a small lever on the dashboard of the car, with the object of rendering the automatic feature adjustable to meet all conditions. The fuel is taken from a 21-gallon copper gasoline tank carried under the front seat.

Ignition is as in 1906, by means of an Eisemann imported low tension magneto, supplemented by imported storage battery for starting, and reserve current. The magneto, however, instead of being set above the engine base and driven by sprockets and chain, is now placed low down on the bed of the crankcase and is direct driven by inclosed gears. The storage battery is carried on the running board of the car in a suitable metal box. On the dash, arranged in one unit, are two coils, a single non-vibrating coil for the magneto current, and a vibrator coil for the battery current. Between the two coils is a hand switch for connecting or disconnecting either system. This switch is provided with a lock so that the owner may lock his car out of service at any time he desires. The final high-tension wiring to the spark plugs is of course the same for both systems. The difference from usual construction is that at the spark plugs, as in 1906, the secondary wires are connected with the plugs by individual knife switches. This renders possible the instant disconnection of any plug and the ready testing of the ignition in any cylinder. The commutator is at the top of a vertical shaft at the rear of the motor, as heretofore. The spark lead and throttle hand levers are placed on the steering wheel in the same manner as formerly.



LOOKING DOWN AT THE MOTOR FROM THE DRIVER'S SEAT.

Lubrication of the motor remains the same simple splash constant feed system that has characterized Packard cars for the past three years. There is a partition in the crankcase between the two pairs of cylinders, in order to insure the preservation of an equal oil level for all cylinders when the car is running on a grade. The oil is pumped in equal quantities to each section of the crankcase by a small pump, driven by worm and gear from the commutator shaft. The oil feed is through two sight feeds on the dash. These are large glass tubes filled



STEERING WHEEL AND CLUTCH OF 1907 PACKARD.

with glycerine, through which the oil rises. The oil reservoir is of one gallon capacity, cylindrical in shape, placed on the left of the motor, midway between the two pairs of cylinders.

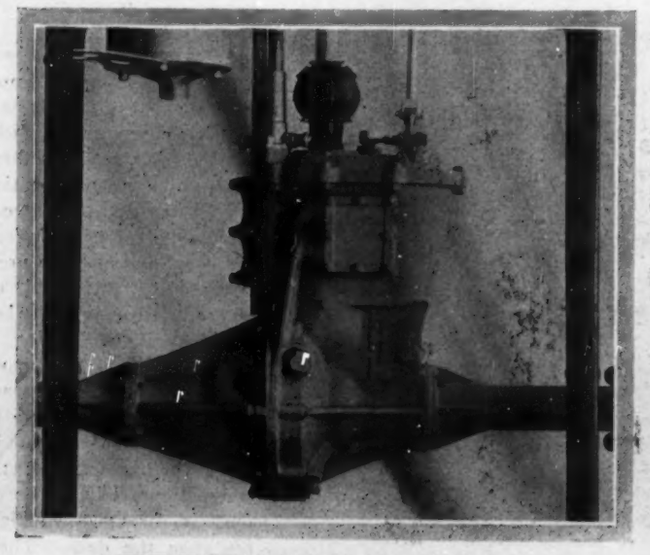
The motor is equipped with the same hydraulic governor that was introduced in the Packard 24 to supersede the centrifugal governor previously used. This governor is a simple diaphragm affair, incorporated in the water system. It is situated close to the carbureter and acts directly upon the butterfly throttle above described. Its limitations and also sensitiveness of action are adjustable, and by means of the foot accelerator it may be cut out, leaving the control of the throttle wholly to the driver.

The exhaust is taken from the cylinders through a typical flanged cast-steel manifold, and thence through a large seamless steel tube exhaust pipe into a large muffler of the concentric cylindrical type.

The clutch is the familiar Packard internal expanding device, with the same special screw and nut method of expanding the inner ring. It has been enlarged over the 1906 pattern to harmonize with the increase of power, being now 15 1-16 inches in diameter. The face width is the same as in the Packard 24. The clutch is operated by a foot pedal and is interlocking with the emergency brake. It is also fitted with new means for adjustment, which is now an exceedingly simple and easy operation.

The transmission from the clutch to the rear wheels is identical with that of the previous model, the only apparent change being a new form of fastener in one of the main shaft ball bearings, and the attachment by pressing and riveting of the rear axle hub to the webbed flanges which constitute the transmission housing, these flanges having been formerly brazed in place.

For those who are not already familiar with the Packard special system of transmission, it is, briefly, a sliding gear set incorporated in one unit with the final drive gears of the rear axle, eliminating an independent transmission housing with its supports. The drive from the clutch to this system is, of course, by a propeller shaft universally jointed at both ends, the joints being of the special type familiar to all of those who have known Packard cars for the past three years.



A VIEW OF THE GEAR BOX AND CONNECTIONS.

The sliding gear set running altogether on imported Hess-Bright ball bearings. The speed changes are affected by the sliding of one pair of gears on the main shaft, those on the secondary shaft being immovable. The third speed forward, or direct drive, is obtained by sliding one of the main shaft pinions directly into the end or final gear, the latter having an internal gear to permit of this clutchlike engagement. The three forward speeds are obtained by a sliding side rod in the transmission housing, which rod has four annular grooves which engage spring-actuated spacing dogs that determine the proper points of gear engagement or disengagement and hold same in position when attained. The reverse is obtained by a separate lever.

Final drive is by the usual Packard method of bevel pinion to a bevel gear differential on the live rear axle, which axle runs on imported Hess-Bright ball bearings within the stationary tubular axle. The rear wheels are secured to the outer end of the live axle by keying. The entire transmission and final drive set is inclosed in a separable but rigid aluminum housing. All end thrust, as well as running bearings, are ball, and all gears constantly run in an oil bath. The gears themselves are specially planed from imported steel blanks, and are hardened by a peculiar process which results in a combination of an exceedingly hard uniform wearing surface, with extremely high tensile strength.

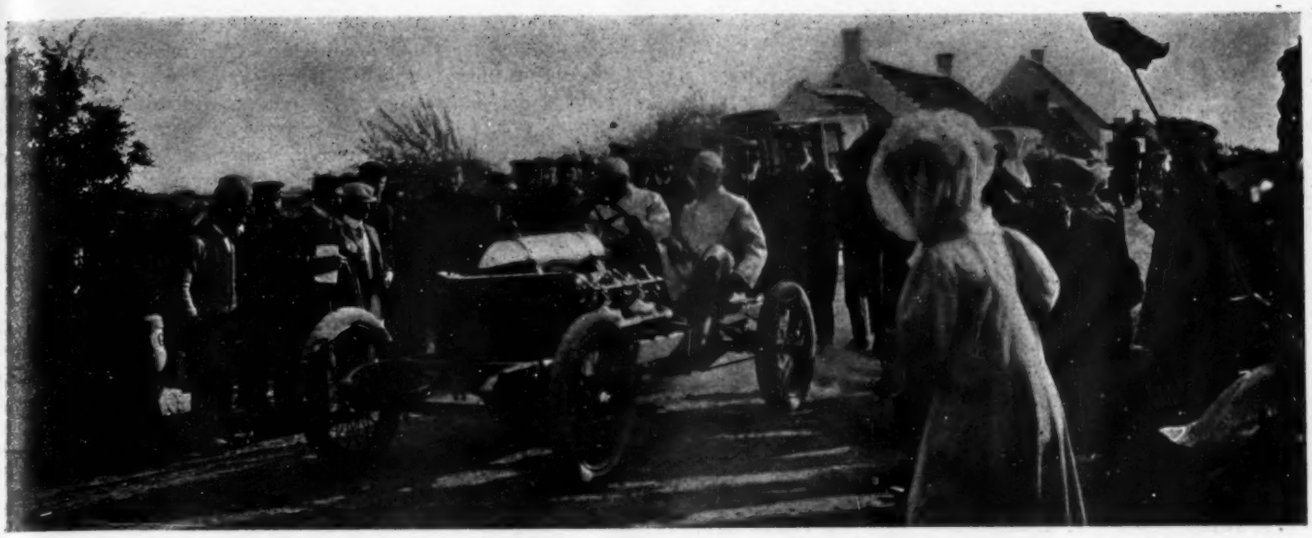
All brakes act directly upon the rear wheels, there being no brakes operated through the transmission gear. The pedal-operated brakes are external band brakes acting upon the rear wheel drums, and the emergency or hand lever brakes being expanding brakes acting upon the interior surface of the same drums. The emergency brake is interconnected to automatically release the clutch whenever this brake is used. It is also provided with a notched quadrant so that it may be locked in engagement when desired, thus rendering the clutch incapable of engagement until this brake is released.

The standard touring body has a greater overhang at the rear than the preceding one, and the extra length is all devoted to the tonneau, which is thus an exceptionally long and roomy one. The back seat is a couple of inches lower than before, and the body lines have been changed to give more of the superstylish vertical, straight-line effect. The cushions have been increased in thickness, and the rear seat and body made wider than heretofore. The front seat is divided as in the past, and the mahogany dashboard, bonnet and radiator are of the previous design, which is an important Packard individuality. Mud guards and bonnet are of aluminum, and aluminum is also used generally in the seat and panel work of the body. The seats are upholstered in black watergrained leather, with curled hair and spiral spring backing. There is a folding brass foot rail for the tonneau passengers and suitable pockets for personal property.

The standard finish is, as heretofore, Richelieu blue body with cream yellow running gear. The car weighs, with regular equipment, 2,900 pounds, and the price, with standard equipment, is $4,200 f.o.b. factory, Detroit.

EXPRESS COMPANY ADOPTS ELECTRICS.

New Haven, Conn., August 6.—Electric motor vehicles have been adopetd in New Haven, Conn., by the Adams Express Company, to supersede the present express wagon system. Superintendent J. C. Curtiss, of the New Haven office of the company, states that ten new cars are expected within the next ten days. For the past month a corps of carpenters, electricians, and other workmen have been busy at the Meadow street barns putting the place in readiness for the new system, and have transformed it into a first-class garage. This is the first practical business to which vehicles of this class have been put in New Haven.



A. LEE GUINNESS AT OSTEND READY FOR THE WORD IN A STANDING START EVENT.

THE NEW EUROPEAN KILOMETER RECORD.

The 200-horsepower Darracq, driven at Ostend by A. Lee Guinness, its new British owner, to a European kilometer record of 19 seconds (117.17 miles per hour), is the same Darracq racer which Hemery intended driving at last year's Ormond-Daytona meet. On that occasion Chevrolet was the substitute pilot, and he traveled the kilometer in 19 2-5 seconds. Subsequently Demogeot triumphed with the car in the Two-Miles-a-Minute event, his figures being :58 4-5. The world's kilometer record is :18 2-5, accomplished by Marriott's steam car at the Florida meet. Guinness is a newcomer to the top notch list of drivers, is a man of considerable means, the greater part of which came from a beverage known as stout. It is among the probabilities that the Britisher may decide to participate in the next meet on the Floridian stretch of sand.

PILOT OF BIG DARRACQ.

The Darracq was also victorious in the light car class at Ostend, Huntley Walker negotiating a kilometer in :26 2-5, there being none to oppose him in the 650 kilogs. class. In the tourist section Mr. Walker covered five kilometers in the very excellent time of 2:22 1-5. The Darracq carried off all the trophies in the automobile meeting organized at Boulogne-sur-Mer by the Northern Automobile Club on July 18-20. Pouring rain marked the whole of the meeting, causing the motorcycle races to be abandoned. In the Baron de Caters Cup contest, a 500 meters hill climb with a flying start, Wagner on a 100-horsepower Darracq secured first place in 17 3-5 seconds. Cecil Edge, driving Prince Caramen de Chimay's new 100-horsepower six-cylinder Napier, was second in 35 3-5 seconds. Later in the day the English car skidded and broke a wheel, without, however, any injury to the persons on board.

In the one kilometer hill climb, flying start, M. Franchomme's 100-horsepower Darracq was first in 38 1-5 seconds. He repeated the victory with a standing start, and then, incidentally, added to his score the level kilometer event. The challenge medal of King Leopold went to Franchomme, who seems to be one of the coming speed pilots of the Continent. Wagner, whose bursted tire performance in the Vanderbilt Cup of last year will bring him to mind, obtained the Caters Cup in the event which he won. The Dararcq company has plunged into the racing game this year more thoroughly than ever before. Hemery again will be seen in the American race, October 6.

HUNTLEY WALKER WHOSE DRIVING OF THE LIGHTWEIGHT DARRACQ AT OSTEND WAS A FEATURE.

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" " This Issue, - - - - - - - - - - - -	15,000
" " Since Jan. 1, - - - - - - - - - - - -	469,000

Statistics That Tell a Pertinent Story. Spread heads in the daily papers whenever an automobile accident happens—the comparative newness of motor-driven vehicles and their use by many persons of more or less prominence accentuating the news value of these catastrophes—have given the public a greatly exaggerated idea of the number of these distressing incidents. Similar fatalities caused by surface trolley cars, horses, and steam railroads are dismissed frequently in brief manner, but the automobile's difficulties invariably find front page positions and black type screechings. Unfortunately there are too many accidents brought about by those who know so much about the automobile that they become careless or by those who take places at the wheel before they are competent to meet the unusual emergency that may come at any moment.

The New York *World* publishes some statistics that tell a story which may be surprising to those who have begun to regard the automobile in an unfavorable light because of this unfair newspaper publicity. From January 1 to July 15 there were 178 deaths in Manhattan borough, according to the coroners' records, caused by cars and vehicles, the apportionment being as follows: Killed by cars (subway, elevated, surface), 80; killed by wagons, etc., 64; by railroads, 18; by automobiles, 16.

The *World* comments that this is remarkable, considering the 16,000 or more motor-driven vehicles in use in the borough "and the speed at which some of them travel." Four times as many persons were killed by horse-driven vehicles, and, therefore, the *World* remarks that "the prejudice found in many quarters against automobiles and automobilists is not entirely justifiable." And these statistics and expressions are printed in a great daily paper which has revised in marked degree its automobile ideas.

An incidental addition to the above statistics might be a reference to the fact that the surface electric lines of Brooklyn borough last year killed 100 persons, and the company in its report congratulated the public and itself that the number had not been greater. A new method of transportation which increases the dangers of the street to foot passengers will result, as the public becomes accustomed to it, in a gradually decreasing number of accidents, but the electric lines of trolley-ridden Brooklyn would seem to be retaining an alarming death average, which condition is lost sight of in the more spectacular though less dangerous progress of the automobile.

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Britain's Probable Abolition of the Speed Limit. After a long drawn out and apparently conscientious consideration of the subject, the British Royal Commission on Motor Cars has brought forth its recommendations for the governing of automobile traffic. Whether Parliament will accept the advice of the Commission is only a matter of conjecture, except that the careful work of the commission will have a great effect.

The feature which will appeal most strongly to all automobilists is the proposed abolition of the speed limit in the country, that for towns and dangerous curves being placed at twelve miles an hour. Of course, the automobilist is held responsible for any damage which he may bring about, no matter at what rate of speed he may be driving, but all reasonably inclined men will agree that any user of the highway should be subject to this regulation. Wherein the automobilist will profit in great degree will be in the discontinuance of unfair time traps set in the outskirts of a town and often in the open country itself. No discrimination between the driver who recklessly rushes past at dangerous speed and the well-meaning unfortunate who has exceeded the stipulated miles per hour by the veriest fraction of a minute has been exercised by those intrusted with the carrying out of the law. These officers in many instances work for a record number of arrests, utterly oblivious of anything except the exact fraction of a second in excess of the legal limit. If the speed limit is abolished in the British Isles a light of a similar intensity may ultimately spread its rays in this country, where the many are still suffering, and probably for the present will continue to suffer, for the sins of the few.

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The Neglect of Tires by Careless Owners. Although tire repairs and replacements form the most considerable item of expense in automobiling, it is usually the case that tires get less careful attention from the owner than the mechanism of the motor and transmission. A driver who will only expend a passing glance on the tires of his car will often spend much time in needlessly fussing about his ignition or carburation, and will be prompt to attend to any signs of deterioration in the working parts of the machine. Yet a little intelligent care of the tires, applied not intermittently but at all times, will go a long way toward making the path of the autoist pleasant.

The most common fault is insufficient inflation. It is the cause of many troubles which are laid to the account of the tire maker. Creeping on the rim, admission of water into the tire and subsequent rotting, frequent punctures—these are all, though not always, attributable to soft tires. Many autoists suppose that a tire fully inflated will burst when heated up by running, owing to the increase in pressure caused by heating. This is not so. Any possible rise in temperature would not increase the pressure to anything like an unsafe amount. Other causes of tire deteriorations are wheels out of parallel, driving in street car tracks and neglect of cuts. The latter should be carefully cemented at the first opportunity and when the tread becomes ragged and worn so as to expose the fabric in spots the shoe should be removed and revulcanized.

Permitting the machine to start on an oily floor when in the garage is very destructive to rubber tires. If it is impossible to keep the floor free from oil, as in a house with wood floor, strips of oilcloth can be laid for the wheels to rest upon. Constant attention to the little things will bring its own reward.

THE A. C. A. SHOW IN DECEMBER.

American Motor Car Manufacturers' Association Will Have Considerable Grand Central Palace Space.

December 1 to 8 will be the dates for the seventh annual automobile show conducted by the Automobile Club of America, and it will be held in the Grand Central Palace, New York City.

This announcement, made Tuesday, after a meeting between representatives of the Automobile Club of America and the American Motor Car Manufacturers' Association, contains this information:

"In line with the club's policy to promote a show for the general good of the industry, the exhibition in December at the Grand Central Palace will be thrown open to the world. Associated with the club in the affair, which is expected to be the largest automobile show ever given in New York, will be the members of the American Motor Car Manufacturers' Association, who have underwritten a large portion of the 60,000 square feet of space offered in the Palace.

"This move is made necessary by the requirements of sixty or more manufacturers who have demanded more space for their increasing number of models, and who have long been desirous of having an earlier show than the January exhibitions of past years.

"In the new building, the club will be much better off than it has been in previous shows, for there will be no additional expense for construction work like that required in the Armory last winter, in making the unfinished building ready for the show, which materially cut down the profits.

"Of the show in December, one-half the profits will go to the Automobile Club's exhibition fund and one-half will be rebated to the exhibitors. Members of the A. M. C. M. A. have the advantage of an association rate in buying space. The radical change of date and location is certain to cause a sensation in automobile circles."

In the arrangements the A. C. A. was represented by Gen. George Moore Smith, chairman; Allen R. Hawley, George P. Butler, and S. M. Butler, secretary. The A. M. C. M. A. representatives were Alfred Reeves, the general manager; Benjamin Briscoe, William Mitchell Lewis, H. H. Rice, Charles Lewis and Charles E. Duryea.

It is understood that the earlier date of the A. C. A. show is not likely to cause any change in the plans of the Madison Square Garden show of the Licensed Association of Automobile Manufacturers, whose exhibition, as usual, will take place in January.

CHAIRMAN THOMPSON RETURNS FROM EUROPE

Chairman Jefferson de Mont Thompson, of the A. A. A. Racing Board, returned from Europe Wednesday on the Oceanic, after having been abroad for the past two months. His return means the immediate arranging of details for the Vanderbilt Cup race of October 6 and the American Elimination trial of September 22. After attending the Grand Prix, Chairman Thompson toured in France and England in his Hotchkiss, which he drives himself.

CONCLUSION OF THE TIRE AGREEMENT.

Representatives of the tire concerns which have been involved in an agreement that has existed for the past two years, met in New York City on Tuesday afternoon, and in the space of a very few minutes a mutual dissolution of the understanding was unanimously agreed upon. September 1 is the date set for the conclusion of the agreement, after which the field will be an open one for all concerned.

TRANSCONTINENTALIST WHITMAN.

He Starts on Another Across-the-Country Trip, This Time in a 30-Horsepower Six-cylinder Franklin.

L. L. Whitman, the well-known transcontinentalist, who holds the San Francisco to New York record of thirty-three days, started August 2 at 6 P.M. on another trip across the continent. This time he is driving a six-cylinder Franklin, and is accompanied by C. S. Carris. From San Francisco to Ogden the 1904 record was bettered by six days. Favored by good weather, the prediction has been made that Whitman may reach New York early next week.

Mr. Whitman carries a letter from San Francisco's Mayor to the Mayor of New York City. Mayor E. E. Schmitz deemed it a particularly opportune way by which to send his greetings to a people and state that responded so quickly and nobly at the moment of San Francisco's great distress; appropriate because the automobile was the one means of travel and communication that survived the fire and earthquake and made relief work possible and effective.

The Franklin six-cylinder is a regular stock machine, fitted up as a runabout. In the hamper are carried half a dozen extra inner tubes, extra cans of gasoline and oil, together with a few small parts which might be required in making repairs on the car. A steamer trunk intended for the men's clothing, blankets to protect them from the cold at night, rubber ponchos to ward off rain and wet, is strapped back of the seats on top of the hamper. The car is fitted with a dash searchlight in addition to the regular lamp equipment, and is also provided with two stout hickory sticks, which, crossing the deserts, are often necessary in prying the car out of the sand. There is also furnished an ax with which to cut away obstructions on the mountain roads; a large-sized revolver, and a compass. Each man has been provided with a khaki suit, a helmet as protection from the severe heat of the desert sun, and a canteen in which to carry drinking water sufficient for several days.

This will be the longest trip of its character ever made by a large, high-powered, air-cooled machine. Naturally, therefore, the performance of this car will be watched with keen interest, as the severity of the journey is intended to demonstrate the practicability of the high-powered, air-cooled car, and also of the six-cylinder type of engine.

The route from Ogden will follow the Union Pacific Railroad over the Rocky Mountains, reaching an altitude of 8,000 feet, down the Platte River Valley, through Cheyenne and into Omaha; the Chicago and Northwestern Railroad across Iowa, through Marshalltown and Cedar Rapids and across Illinois into Chicago; the Lake Shore and New York Central lines through South Bend, Toledo, Cleveland, Erie, Buffalo, Syracuse, Albany, and on to New York. The entire length of the trip as covered by the car will be between 3,500 and 4,000 miles.

COMING OVER FOR THE VANDERBILT CUP.

PARIS, Aug. 1.—Gustave Caillois and Hubert Le Blon have booked passage on *La Savoie*, sailing from Havre on August 18. The two French drivers engaged to drive Thomas cars in the Vanderbilt Cup race believe that they have every chance of winning the Vanderbilt Cup for America.

The departure of Fitz Shepard, the American driver of the Hotchkiss car engaged in the Vanderbilt race, has not yet been fixed. The machine will be the one used in the Grand Prix with wooden wheels and patent mobile rims in place of wire wheels. It is almost certain that a similar change will be made on Hemery's Darracq car.

WIDEAWAKE CLUBS ARE UP AND DOING

Hartford's Club Plans a Line of Defense for Members.

HARTFORD, CONN., Aug. 6.—The Automobile Club of Hartford has issued a synopsis of the Connecticut automobile law and list of attorneys, which has been prepared by Schutz & Edwards, of Hartford, who have been retained as special counsel for the club, and who will defend members when arrested for alleged violations of the law upon the following terms: In the city of Hartford, $5 for each case; outside Hartford, but in Hartford county, $15 and expenses; elsewhere in the state, $25 and expenses. The attorneys in the various towns throughout the state, whose names appear on the list, will defend members of the club when arrested in their localities for $10 and expenses in each case, and will arrange for bail when necessary. A club member when arrested must present to the attorney his club card, signed by the secretary and countersigned by the treasurer. In the list of attorneys issued, the business addresses and residences are given, also the telephone numbers, so that the members may enjoy every facility for the rapid securing of counsel.

Kansas City Automobilists Want Use of Park Drive.

KANSAS CITY, Mo, August 4.—At a recent meeting the Kansas City Automobile Club decided to protest against the rule which keeps autos off the Cliff drive, one of the most picturesque roads of the city. The park commissioners will be asked to open the driveway to automobilists one day in the week.

The yearly financial statement of the Kansas City Automobile Club, as submitted by Secretary-Treasurer H. G. Blakely, at the recent meeting, shows a healthful condition of the club's resources. The cash balance on hand was $805.29; last year's expenditures, $1,430.84; receipts and cash previously on hand, $2,236.13.

An endurance contest will be conducted by the club in September. A committee, headed by President W. W. Cowan, has charge of the arrangements which are being worked into form at weekly meetings. The date and course will soon be announced.

New York M. C. Preparing for Its Economy Test.

NEW YORK, Aug. 8.—The postponed economy run of the New York Motor Club, the new dates for which are August 29-31, is the next automobile event of importance in the East. The test will be one of the most rigorously conducted of any technical test runs so far held, and will undoubtedly attract a large entry. Nine entries have already been filed. The club will employ observers in the test, and the run will present a good opportunity for automobilists to judge the relative merits of the checking and observer systems.

At the last meeting of the board of directors of the New York Motor Club six new members were admitted. H. K. Sheridan, of Cleveland, was admitted on the non-resident list.

Duluth, Minn., Will Celebrate Auto Day, August 25.

DULUTH, MINN., Aug. 4.—At a meeting of the Duluth Automobile Club held last week, it was decided to change the date of Automobile Day to August 25 instead of August 4, as originally intended. Arrangements are now under way to celebrate the day in an appropriate manner, and a committee of arrangements consisting of A. M. Miller, Jr., R. J. McLeod and F. A. Brewer, is actively at work on the program. At least 65 automobiles will be in the parade, which will embody a number of special features, and suitable prizes will be awarded for the best decorated machines. The celebration of the day will be concluded by a banquet in the evening.

Tarrytown's New Club a Strong Organization.

TARRYTOWN, N. Y., August 7.—Automobilists have organized the Westchester Motor Club, with 21 charter members, and application has been made for membership in the American Automobile Association. Permanent organization was effected by the election of the following board of officers: President: R. A. Patterson; vice-president, R. E. Hopkins, Jr.; treasurer, Conrad Bolling; secretary, A. S. Le Vino; member of executive committee, W. A. H. Ely. The club has plans in the work for a hill-climbing contest on Labor Day and an endurance contest later in September. Though less than a month has elapsed since the organization of the club, the membership has already passed the half-hundred mark. Clubrooms have been secured at Main street and Broadway, in one of the fine old Tarrytown residences, which is now undergoing alterations suitable for converting it to the club's uses.

CLUB DOINGS IN GENERAL.

NEW YORK.—Twelve new members were admitted at the last meeting of the board of governors of the Automobile Club of America. Three new non-resident members, Leslie D. Ward, of Newark, N. J.; George L. Fleitz, of Detroit, and Frederick C. Todd, of Baltimore, were also admitted.

WATERTOWN, N. Y.—The Watertown Automobile Club, which was organized a few months ago, is rapidly increasing its membership. President L. G. De Cant is greatly interested in the movement for road signs and the club will make it its duty to see that they are properly put up in this locality.

NORFOLK, VA.—Automobilists of this city have held preliminary meetings for the purpose of forming a club. The first meeting was held at the office of Dr. E. L. Myers, and twenty were present. A committee was appointed to draft a constitution and by-laws, and perfect the preliminaries. Dr. Myers was elected temporary president and H. H. Trice was elected secretary. The club will endeavor to interest the Norfolk county officials in the proposition of a new boulevard.

TOPEKA, KAN.—A road map for the state of Kansas is being prepared by the Topeka Automobile Club. At a recent meeting of the club committees were appointed to map out the best roads to different towns in the state, to which runs will be made this summer, and the same committees will continue the work of preparing and issuing the state map. Invitations have been sent by the Topeka organization to the clubs in the cities in the surrounding states to meet in Topeka this summer for an interstate meeting.

DES MOINES, IA.—The Iowa Automobile Club, of this city, organized in 1905, now has an active membership of 85, resident in this city, and 8 out-of-town members. The club is taking an active interest in street improvement here, and at a recent meeting appointed a committee consisting of T. I. Stoner, chairman; Grover Hubbell and J. O. Wells, to act in conjunction with the city paving inspector to obtain the desired improvements. The board of officers for the ensuing year are: President, W. S. Donahey; first vice-president, D. B. Fleming; second vice-president and captain, Dr. W. W. Van Werden; secretary, Harold R. Wells; treasurer, Grover C. Hubbell; laws and ordinance and highways committee, G. B. Hippee, N. T. Guernsey, F. C. Youngerman.

A BUDGET OF NEWS FROM ABROAD

BELGIUM'S TOURING CONTEST.

BRUSSELS, Aug. 1.—Belgium displayed some originality in arranging the basis of its touring contest known as the Criterium of Regularity. Three classes were provided for.

Only Class I had any real interest for the public at large. Competitors in this section had to effect a five days' regularity and eliminating contest at an average speed of not less than 20 miles an hour and qualify for final position by a speed contest of 500 kilometers.

Belgium, Holland, Germany, and France were the countries run through, and a total of seventy-six engagements were received from the most representative firms of these four countries.

Two Pipe cars (Belgium), a Darracq and a Benz (German) were entered in the sixth class with a cylinder bore of 135 to 140 mm. and chassis weighing 1,670 to 1,790 kilos.

The 100 to 125 mm. bore and 1,150 to 1,400 kilos class had eighteen French, Italian, German, and Belgian starters. The 98 to 104 mm. bore and 1,180 to 1,370 kilos. class had fourteen starters; the 90-95 mm. and 1,080 to 1,280 kilos. class had three starters as had also the second and first categories.

Very few cars were eliminated by the five days' touring contest. Road accidents claimed a few, but mechanical defects were practically nil, and when the speed contest was entered upon there were thirty starters in four classes. During the eliminating runs no work had been allowed on the car, but one hour was given for changing tires just before the speed contest. The result was:

Class 6. (Cars of 615,753 square centimeters piston surface and weighing 1,750 kilos.)

1. Pipe (Belgium)..... 6:45:14 4-5
2. Darracq (France)..... 5:37:25 3-5

One Pipe car overturned and a Benz failed to finish.

Class 5. (Total piston surface 490,876 square centimeters and weighing 1,500 kilos.)

1. Gobron (France)..... 7:26:37 2-5
2. Gobron (France)..... 7:38:56
3. Fiat (Italy)..... 8:25:22
4. Fiat (Italy)..... 8:37:38 3-5
5. Gobron (France)..... 8:45:20
6. Aries (France)..... 9:16:36
7. Martini 9:41:05

A Darracq, a Porthos, a Mors, and an Imperia abandoned.

Class 4. (Total piston surface 346,360 square centimeters, and weighing 1,250 kilometers.)

1. Vivinus (Belgium)..... 8:07:45
2. Pipe (Belgium)..... 8:10:13
3. Pipe (Belgium)..... 9:05:45
4. N. A. G. (Germany)..... 9:17:32 1-5
5. Darracq (France)..... 9:25:23
6. N. A. G. (Germany)..... 9:28:28

Aries, Mieursel, two Pipe cars, and a Ruhl abandoned.

Class 3. (Total piston surface 28,353 square centimeters and weighing 1,000 kilos.)

1. Aries (France)..... 7:32:27
2. Metallurgique 8:24:59

German Chainless abandoned. This class only covered four rounds instead of five.

HERKOMER AWARDS MAY BE RECONSIDERED.

PARIS, Aug. 1.—Although the Herkomer Cup was disputed over three weeks ago, discussion is still going on among the competitors regarding the rewards. It is stated that the table of curves used to establish the final position of the cars placed powerful vehicles at a disadvantage. In view of the dissatisfaction the Imperial Automobile Club, of Germany, has decided to call a meeting of the technical commission to consider the entire question. This meeting will be held in a few days, and it is not improbable that changes in the awards will result.

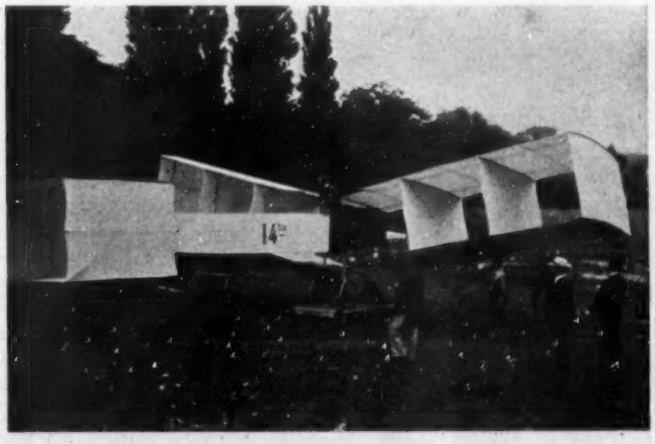
FLORIO CUP RACE ABANDONED.

PARIS, Aug. 1.—Almost as much disappointment is felt in Paris as in Italy at the abandonment of the Florio Cup race this year. Thirty-four entries had been received from France, Italy, Germany, and England; a large sum of money had been spent on preparing the circuit, trades people in the vicinity of the course had incurred heavy expense in view of the race, but because the Italian minister of war refuses to grant 600 soldiers to guard the course the event has had to be abandoned. At Brescia popular demonstrations have taken place, the people and troops have come into collision, the demission of the minister of war has been called for, and the Municipal Council has abandoned office en masse.

Vincenzo Florio, the donator of the cup and the leader of automobiling in Italy, being this week in Paris, his opinion of the situation has been obtained. M. Florio says he cannot understand the action of General Vigano, minister of war, for during the Targo Florio they obtained all the help necessary from the military authorities. The general having peremptorily refused to reconsider his decision, an appeal can only be made to the King. Should this final appeal fail, the Chevalier Florio says he will get out of the difficulty by holding the race next year on the Island of Sicily, where he owns large tracts of land and where a course could be easily constructed. He would also place his steamship at the disposal of competitors for the passage from the mainland to the island.

BRITAIN'S AUTO COMMISSION REPORT.

LONDON, Aug. 1.—The long-awaited report of the Royal Commission on Motor Cars has just been issued. Briefly, the proposals are far more favorable to autoists than had been hoped for. It is recommended that the present speed limit of 20 miles an hour in the open country be abolished, reliance being placed on a "furious driving" clause to safeguard the public, but in special cases, such as corners, etc., a limit of twelve miles an hour might be imposed. Automobilists must be registered annually, and a graduated scale of taxes according to weight is suggested. All taxes and fines should be devoted to the maintenance of the roads, with the special object of prevention of dust. Altogether, the recommendations are very satisfactory, and in the event of Parliament adopting the Commission's report, autoists will have little to complain of. There has not yet been time for public opinion of the report to manifest itself.



THE NEW AEROPLANE OF SANTOS-DUMONT.
This is the flyer with which he has been experimenting at Trouville. The motor is a Levasseur.

GEORGIA'S NEW AUTO LAW.

ATLANTA, GA., Aug. 6.—The Georgia House of Representatives has passed the Fielder automobile bill by such an overwhelming majority—119 to 2—that it is practically certain that the Senate and the Governor will act favorably on it.

The bill first submitted to the house was prepared by Mr. Lumpkin, of Walker County, and provided that operators of automobiles and other vehicles of similar motive power shall, upon approaching live stock in the road, stop their vehicles, in case such live stock becomes frightened, until the animal becomes passive, and speed is limited to eight miles per hour.

The committee on special judiciary offered amendments making it a misdemeanor to violate the provisions of the proposed law, and to limit the speed to 12 miles per hour.

The substitute, which was passed, provided that no person shall drive an automobile upon any highway or in the built up sections of any incorporated city where houses are at an average of 150 feet apart at a greater speed than a mile in six minutes. It is also provided that a mile in three minutes shall be the limit of speed except as above provided. The substitute also provides that no person shall run an automobile anywhere in the state at a speed greater than is reasonable, with regard to traffic upon the public roads.

Another provision is that any person injured in person or property through the negligence of an operator of an automobile shall have the right to sue and recover damages; that drivers of automobiles shall stop their vehicles when animals become frightened, and prescribes the use of suitable bells, horns and other signal devices; white lights, discernible at a distance of 200 feet, to be displayed one hour after sunset to one hour before sunrise, a red light to be displayed at the rear of the vehicle.

An attempt to incorporate an amendment which defined negligence on the part of automobile drivers met defeat. So also did the amendment excepting Savannah from the bill's provisions.

OVER 32,000 AUTOS REGISTERED IN NEW YORK

ALBANY, N. Y., Aug. 6.—Records in the office of the Secretary of State show that the number of automobiles registered up to August 1 of this year was 32,082. For the first seven months of 1906, the number registered was 8,210, as compared with 6,137 for the corresponding period in 1905—a gain this year of over 2,000. The number registered thus far this year has been increasing steadily up to the present month, which is usually the dull season in all branches of the industry. The sales are likely to pick up again in the fall, and the total number of automobiles registered for the year is expected to increase at least 3,000 over the record for 1905.

The registry list in the Secretary of State's office shows a decrease in the number of French cars put out this year. Three years ago a surprisingly small number of American-made cars was made and sold, French models prevailing generally. Now all has been changed.

AUTOIST WHO TURNED LIKE THE WORM.

LAPORTE, IND., Aug. 6.—Rambunctious farmers who are determined to run the automobiles off the county roads without let or hindrance, have been brought up with a round turn in Laporte county. One of these soil tillers who has it in his mind that the roads were created for the sole benefit of the farmers stopped the driver of a big car the other night ostensibly to ask him a few fool questions. The car owner passed the incident good humoredly, but on the return trip he found a number of timbers placed across the highway. He ran into one before he could slacken speed, broke his springs and sprung his forward axle.

Then he hunted up the individual who had blocked his way on the outward trip, and sweated an ugly admission out of him. Arrest and prosecution followed and the would-be blockader was mulcted in fine and costs.

SHELBURNE WARNS AUTOMOBILISTS.

SHELBURNE, VT., July 24.—The selectmen of this town have issued the following protest against automobilists who run their machines through the town at a rate far above the speed limit:

"Many cars are driven on our roads in the town of Shelburne at breakneck speed. We would say to the parties who have been in the habit of running their machines at a rate of speed far in excess of the speed limit: 'Be gentlemen. Run your cars slower. Live and let live. If the speed of many machines is not decreased arrests will follow.'"

Mr. Romley, of the selectmen, stated to-day that the board was determined in its effort to stop fast driving. When asked if the town was likely to post the main roads against automobiling, he stated that this would probably not be done; but that if the fast driving is not stopped men would be stationed at intervals along the main road to "pinch" every driver of a machine exceeding the speed limits.

Accidents have already occurred, and the selectmen have received many complaints from the townspeople, who are greatly incensed at the manner in which autoists passing through the town ignore the rights of those driving teams and endanger many lives for the sake of running their cars faster than the law allows.

ROCHESTER RACE ENTRY BLANKS READY.

Entry blanks have been issued for the American Touring Car Derby, the race meet for touring cars only which will be held at Rochester, N. Y., Labor Day, September 3, under the auspices of the Rochester Automobile Club. The most important event will be a 100-mile road race over a 25-mile course. A map of the course was published in THE AUTOMOBILE of July 19, together with other information regarding the events. In addition to the big road race there will be four one-mile contests for touring cars classified according to selling price. The course for the premier event is a 25-mile circuit, and oil will be used to lay the dust. Cars are required to be equipped with two brakes and reversing gear; mud-guards, footboards and lamps may be removed and muffiers may be omitted if the exhaust pipes are not directed toward the ground.

The races will be under the management of W. J. Morgan, Bretton Hall, Eighty-fifth street and Broadway, New York, to whom entries may be sent up to August 25.

PIMLICO SUCCUMBS TO AUTO RACING.

BALTIMORE, August 6.—The motor racing promoters of this city have secured, after long and hitherto vain efforts, the Pimlico one-mile circular track, and Howard French and Howard Gill announce for next Saturday a meet in which Barney Oldfield will be the star attraction.

ERNEST KEELER, WHO DROVE HIS PERFECT SCORE OLDSMOBILE FROM BRETTON WOODS TO NEW YORK IN NONSTOP STYLE.

WHITE STEAMER WAGONETTES IN JAPAN.

Americans have learned pretty thoroughly that the little Japs are remarkably quick and use excellent judgment in taking up the new inventions of the New World and applying them to the improvement of the condition of the inhabitants of the East. The accompanying photograph shows an interesting mixture of the very new and the extremely ancient. The car, a White with special body, represents the new, and the old is sufficiently represented by the little brown men themselves and by the inscriptions in Japanese characters on the sign on the roof of the car, and on the posts near by.

Five of these special cars are in use in Osaka, Japan, by the Osaka Jidosha Company, for the transportation of passengers between Osaka and Sakai, a distance of seven miles. The line has been in operation since last fall, and has proved so satisfactory that twelve more cars have been ordered, to be placed on routes in the district. Each car carries ten passengers in addition to the driver and conductor and seven round trips are made on schedule each day—a total distance of a hundred miles. Running regularly according to schedule, and moving along

ABOARD THE WHITE IN THE LAND OF CHRYSANTHEMUMS.

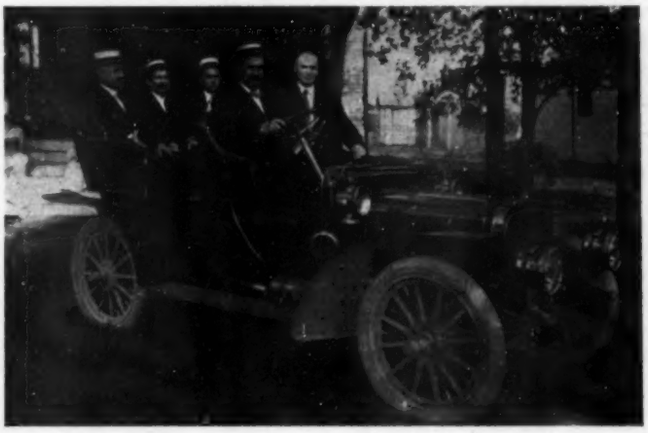
the roads quietly and smoothly, the cars have created an excellent impression, not only among the members of the firm operating them, but among the public—which is, after all, the real test.

HOW THE FORD RUNABOUT MADE GOOD.

Many persons have wondered, ever since the Ford Motor Company, of Detroit, announced the $500 four-cylinder runabout, how the machine would stand up under the conditions imposed by road service. In this connection the experience of E. C. Shumard, of Cincinnati, O., agent for the Ford car, is interesting. Mr. Shumard insisted on driving his runabout from Detroit to Cincinnati rather than ship it by rail. A start was made on a Thursday at noon, and the car was run through to Toledo, O., that place being reached at 6 o'clock, without doing anything to the car except a little extra oiling because the lubricator had not been adjusted at the factory owing to Mr. Shumard's impatience to get away. At 6 o'clock next morning Toledo was left and at 2 o'clock Bellefontaine was reached. Here a heavy rain set in and it was decided to remain for the night. Next morning (Saturday) an early start was made, and the remainder of the run to Cincinnati was made through mud and water. For mile after mile, Mr. Shumard states, the car was pushed through mud and water, the water at times splashing over the driver's head. Nevertheless the car stood up to its work well, taking mud, sand and hills on the direct drive and requiring no attention other than driving. The car arrived at the end of the three hundred mile journey in excellent condition, a careful examination failing to disclose any ill effects except in the appearance of the car. Mud was plastered over everything, but nothing suffered except the appearance.

MICHIGAN DIGNITARIES GO AUTOING.

Several Michigan officials and ex-officials on vacation are shown in the accompanying photograph of five men in a car. At the wheel is Governor Warner and beside him sits State Superintendent of Public Instruction Patrick Kelly. Counting from the

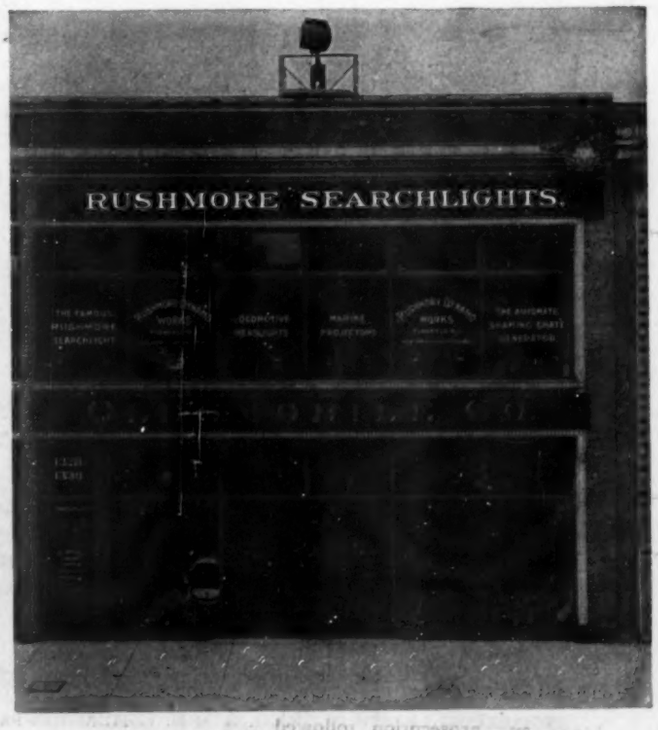


AN AUTOMOBILE LOAD OF MICHIGAN NOTABLES.

right hand side of the car, the occupants of the rear seat are State Dairy and Food Commissioner Bird, ex-Representative Frank Neal and ex-Senator Waterbury. The photograph was taken at Cass Lake. Governor Warner's summer cottage is seen in the background. The car is an Aerocar.

THE RUSHMORE CHICAGO BRANCH.

A branch store, for the convenience of western patrons, has been opened in Chicago by the Rushmore Dynamo Works, of Plainfield, N. J. It is located in Chicago's "Automobile Row" and is above the Oldsmobile agency. On the roof of the building is an 18-inch navy electric searchlight which is controlled by a time switch set to start the light at dusk and turn it out at midnight; the beam of light is sent down the street just over the heads of the people. A full line of Rushmore marine, locomotive and automobile searchlights is carried.



RUSHMORE COMPANY'S NEW CHICAGO BRANCH STORE.

ANOTHER TEST RUN FOR THE PACKARD.

Monday night at 11 o'clock Russell Huff drove a Packard "30" runabout into New York, after a run of 778 miles over all of the good and rough roads between Detroit and the metropolis and through several rain storms and 300 miles of mud plugging, in 29 hours running time.

The purpose of the trip was to test the new runabout, Mr. Huff being the chief engineer of the Packard Motor Car Company. He was accompanied by E. R. Estep, of Chicago. The start from Detroit was made Saturday morning and that day 298 miles to Buffalo were made over the Governor's Highway through Canada. Here the roads were dry and hard but worn out and full of cross ridges which made fast driving a continuation of bouncing.

After an overnight stop at Buffalo the trip was continued Sunday noon. The running from Buffalo to Rochester was partly over good macadam, but fully three-fourths of it was over clay, sand and worn-out gravel roads that wound back and forth over the Erie Canal. East of Syracuse heavy rain was encountered and the day's run was stopped at Canastota, 202 miles. Monday the remaining 278 miles to New York were covered.

For the entire trip the average running was 30 miles an hour. There were no delays on the road other than stops for meals and fuel and one stop of over an hour, Sunday, caused by the car dropping suddenly into a grass-hidden bog which had to be negotiated in a cut-out around an unfinished bridge. The machine sank to its axles in black, watery mud, but, after some digging away of mud, was run out under its own power.

The only damage to the car was the bending of a rear mudguard in a mix-up with a loose anti-skid tire chain. A feature of unusual character was that the entire trip was made without a radiator fan, in order to test the efficiency of the water cooling system under abusive conditions. This departure from common practice gave no trouble. There was no tire mishap but one rear tire was worn down to the last layer of fabric.

Automobiles are coming into such general use in Pittsburgh that it has become necessary to provide big garages at the local parks to house the machines brought there by daily park visitors. The first park to inaugurate this custom is Kennywood, to the south of the city.

TRADE HAPPENINGS IN DETROIT.

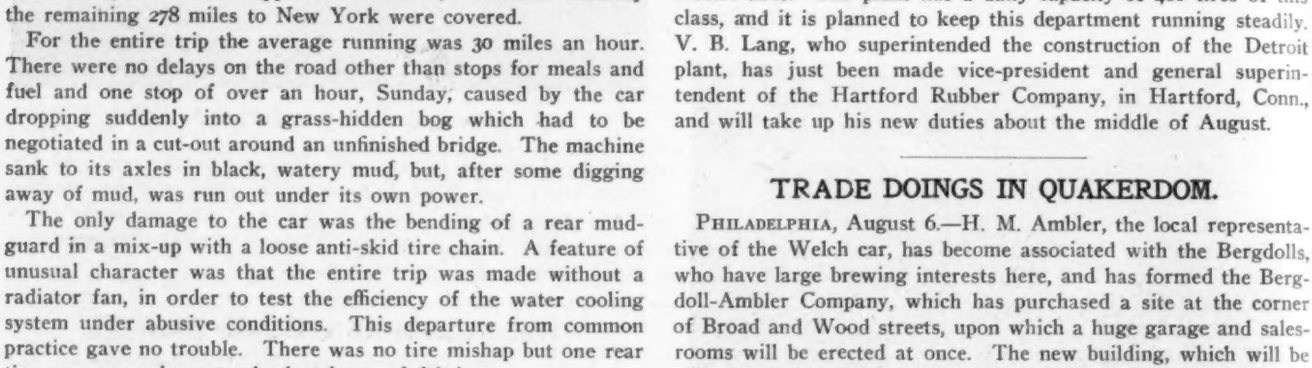
DETROIT, MICH., Aug. 6.—Detroit's prestige as the automobile producing center of the country promises to be materially strengthened with the fulfillment of plans that have been formulated. Announcement is made that the Peerless Motor Car Company, of Cleveland, will build an immense plant here, a site having been secured on the west side. According to advices, when completed the factory will take rank with the largest now here and furnish employment to several hundred men.

Since the selection of J. H. O'Brien as manager of the Wayne Automobile Company that institution has taken on new life and every energy is being exerted to meet the demands for machines. Plans are being prepared for a new building which will more than double the capacity of the present plant, and involve an expenditure for this purpose alone of more than $50,000.

The new Morgan & Wright plant, which when completed will be the largest factory in the country for the production of commercial rubber goods, will in a few days begin turning out automobile tires. The plant has a daily capacity of 400 tires of this class, and it is planned to keep this department running steadily. V. B. Lang, who superintended the construction of the Detroit plant, has just been made vice-president and general superintendent of the Hartford Rubber Company, in Hartford, Conn., and will take up his new duties about the middle of August.

TRADE DOINGS IN QUAKERDOM.

PHILADELPHIA, August 6.—H. M. Ambler, the local representative of the Welch car, has become associated with the Bergdolls, who have large brewing interests here, and has formed the Bergdoll-Ambler Company, which has purchased a site at the corner of Broad and Wood streets, upon which a huge garage and salesrooms will be erected at once. The new building, which will be three stories in height, will be the most complete of its kind on "the row." Besides the Welch, the new concern will handle two or more additional cars, negotiations for which are now in progress. A new manager for the local Reo agency was installed last week in the person of Walter J. Sprankel, who will hereafter have entire charge of the Reo temporary office in the Mint Arcade and the uptown garage at 1627-29 Brandywine street.



ENGINEERING BRANCH OF THE A. L. A. M. VISITING THE PACKARD FACTORY DURING THE RECENT MEETING IN DETROIT.

NEWS AND TRADE MISCELLANY.

Plans for a big racing car are said to be under consideration by the Kansas City Motor Car Company, of Kansas City, Mo.

Denatured alcohol is to be given exhaustive tests by the Weber Gas and Gasoline Engine Company, of Kansas City, Mo. Preliminary tests have already been made to furnish data on which to base further experiments.

The Chicago Automobile Manufacturing Company, now located at 4212 State street, Chicago, makers of the Chicago steam cars, contemplates locating its factory at Connersville, Ind., providing that town will take $17,000 of the $50,000 capital stock to be subscribed.

Local capitalists of Wheeling, W. Va., are forming a company for the purpose of manufacturing automobiles, and a plant is to be built in connection with another manufacturing industry there. Charles Franzheim, of the Wheeling board of trade, is at the head of the enterprise.

The Healy Leather Tire Company, of 90 Gold street, New York, will send out Frank W. Wood on an extended business trip through the western states in the interests of the Healy leather tire. The principal cities and towns in the West will be visited and the trip will extend over a period of three or four months.

Luther B. Yaple, of Chillicothe, O., is at the head of a company now in process of formation, with a capital stock of $250,000, to manufacture automobiles. The company proposes to make a four-cylinder car seating five persons, of 20-25-horsepower, shaft driven, which will be placed on the market at about $1,250.

The Muncie Auto Parts Company, of Muncie, Ind., whose present factory is located on North Walnut street, that city, contemplates the erection of a larger building for the accommodation of its growing trade. At a recent meeting of the directors it was proposed to erect a two-story brick structure, 100 by 132 feet.

The new garage established recently by the H. H. Franklin Mfg. Co. in connection with their factory repair shop is being much appreciated by tourists in general who elect to pass through Syracuse. Every comfort in the shape of waiting and reading roms have been provided, and the best possible service is given.

Plans are in preparation for the erection of a new manufacturing plant at Detroit by the Peerless Automobile Company, of Buffalo. The property at Detroit upon which the factory will be built is situated on the river side of River street, near the American Car and Foundry Company's forge department. It is reported that work of erection will be begun by August 15.

It is only in fiction that the automobile of to-day invariably breaks down. Those who have grown weary of automobile stories because this musty plot is always used are recommended to read the complete novel by Elizabeth York Miller, which opens the September *Argosy*. It is bright, lively, full of incident and interest, and there is not so much as an exploded tire from beginning to end.

There are places on Broadway where business is never dull, according to Smith & Mabley, of Broadway and Fifty-seventh street, New York. This concern has sold Simplex cars to A. B. Warton, F. Andrew, Daniel Beacon and the Champion Contracting Company; a Simplex limousine to Wilson Marshall; a Panhard limousine to J. Gatins; and Simplex motor boats to C. G. Gates and E. H. Harriman. The total amount of money involved in these sales was $52,350—a single week's sales.

Following its customary methods, the Packard Motor Car Company, of Detroit, Mich., has commenced a series of severe, not to say violent, road tests of the new Packard 30-horsepower 1907 car. Russell Huff, chief engineer of the Packard company, has been driving the car so tested. Various members of the firm are taking turns in hammering the car all over the country to bring out any weaknesses that may exist, and avoid the necessity for asking the purchasers of next season's cars to do the testing out.

On August 15 the Kansas City Motor Car Company, of Kansas City, Mo., will start a two ton commercial wagon on a test run from Buffalo, N. Y., to Boston, passing through Utica, Syracuse, Schenectady, New York City, New Haven, New London and Providence, R. I., to Boston. It is expected that Boston will be reached by August 22; the total distance is about 850 miles. George K. Wheeler, general manager of the company, J. E. Caps, two chauffeurs and newspaper men and representatives of the A. A. A. will constitute the party; a 50-horsepower Kansas City tourabout will also make the trip.

"It is interesting to note," said President Hartford, of the Hartford Suspension Company, "that of the twenty cars equipped with shock absorbers in the Glidden tour, sixteen of them had Hartfords. There were two of another make and one each of two other types. All of the White steamers, all the Pierce Great Arrows, the big six Stevens-Duryea, Walter White's confetti car and the Pierce six cylinders, all used our suspensions, to say nothing of Columbias, Clevelands, Packard, Corbin, Buick and Locomobiles. Of the clean scores, three Pierce cars and Barrett's Columbia had our shock absorbers."

Charles F. Barrett, an A. A. A. tourist who was one of the thirteen to finish the event with a perfect score, driving a 24-28 horsepower Columbia car, voiced the opinion of the majority of tourists when he said that the test had shown up in a remarkable way the absolute necessity of a good and efficient spring equipment. The roads from Saratoga to Montreal had been almost impassable in places, cut up by ruts, ridges, and innumerable water bars, and covered with loose stones, hard, not only on tires, but on springs as well. Barrett's springs stood the ordeal perfectly, and to this fact he attributed a good deal of his success.

Steady progress is being made on the two Maxwell racing cars which are being constructed as candidates for the American team in the Vanderbilt Cup race contest. The motors for both machines are almost completed, work on the twelve-cylinder engine being especially well advanced. J. Fred Betz, third, the young Philadelphian, who is to make his debut as a race driver in the American elimination trials as the Maxwell pilot, pays frequent visits to the factory at Tarrytown to watch the construction of the two racers. As soon as the cars have been sufficiently completed to be ready for their preliminary try-outs they will be tried out by J. D. Maxwell, their designer, after which both will be turned over to Mr. Betz for some further trials. The Maxwell-Briscoe Motor Company has taken time by the forelock and has already engaged its training quarters on the Jericho Turnpike at Mineola, in the belief that the 1906 contest will be run over the course used last year.

Montreal is to have a new industry in the shape of a large automobile factory which has just been organized under the name of the Monarch Motor Car Company (Limited), with a capital of $250,000. About a dozen of Montreal's best known financial men are the principal shareholders. Operations will be commenced at once and the product will be ready for delivery in ample time for next season's use. It is the intention of the new company to manufacture a high-class touring car which will probably sell at $4,000 or $5,000. Motor trucks and delivery wagons will also be a part of the output. L. D. Robertson, manager of the Eastern Automobile Company, of Montreal, will be general manager. He leaves for Europe on August 2 to study the new features of European cars, and while abroad will assist the company's engineer in selecting material and parts for next season's product. A large factory is being negotiated for, and the works are expected to be in full operation by November 1.

NEW AGENCIES ESTABLISHED.

The Franklin agency for St. Louis, Mo., has been taken by the Cadillac Automobile Company of that place. The Mississippi Valley Automobile Company, which formerly handled the Franklin, is devoting all its attention to the White.

The Buick-Johnson Company, which has succeeded the Michigan Automobile Company at Ottawa and Fulton streets, Grand Rapids, Mich., will act as distributers for the Buick in western Michigan. The officers of the company are: President and general manager, C. R. Johnson; vice-president, A. H. Goss; secretary, C. Ross Clough.

Branch houses will be opened in Boston and Chicago by the H. H. Franklin Manufacturing Company, of Syracuse, N. Y., and suitable locations have already been secured on Boylston street in Boston and on Michigan avenue, Chicago. This is a new departure for the Franklin company, which has never before opened a branch house.

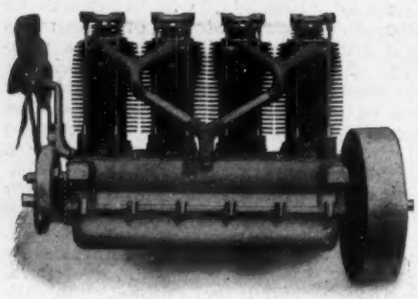
PERSONAL TRADE MENTION.

Owing to poor health during the past season and inability to attend personally to business, R. D. Alliger, Jr., has withdrawn from the partnership of Brandenburg Bros. & Alliger, Syracuse, N. Y. Mr. Alliger states that he will devote his entire time to regaining his health, and when that happy occasion arrives will purchase an interest in some business connected with the automobile industry.

Otis R. Cook, for twelve years general representative of B. F. Goodrich Tire Company, Akron, O., will in future represent the following concerns in Cleveland, with offices at 410 American Trust Building: Firestone Tire & Rubber Company, Akron, O.; National Wheel Company, Jackson, Mich., manufacturers of artillery wood wheels; International Rubber Manufacturing Company, makers of bicycle tires and sundries; Troxel Manufacturing Company, saddle makers.

INFORMATION FOR BUYERS.

REEVES AIR-COOLED MOTOR.—A four-cylinder air-cooled gasoline motor of very neat design has been placed on the market by the Reeves Pulley Company, of Columbus, Ind.; this engine is shown in the accompanying illustration. The cylinders are 4 inches square, in mechanical parlance—that



REEVES AIR-COOLED FOUR-CYLINDER MOTOR.

is, the bore and the stroke are of the same measurement—and the output of the engine is rated at 20 horsepower. The valves are placed in the cylinder heads, opening directly into the cylinders, and are operated by short rocker arms actuated by long rods extending upward from the camshaft inclosed in the crankcase; a single camshaft carries the cams for all the valves. Valve springs are exposed to the air, which has an important bearing on their life, preventing their overheating. The cylinders are cast with the head ends closed except for the valve cage openings. Wide, thin, cooling flanges are cast integral with the cylinders, and extend down to a point near the bottom, insuring ample radiating surface for every part of the cylinder. A strong draught of air is blown on the cylinders by a fan mounted on a bracket bolted to the crankcase and driven by belt from a pulley on the projecting end of the crankshaft. The two-to-one gears driving the camshaft are inclosed in aluminum housings. Aluminum is employed for the crankcase, which is split horizontally. Arms for attaching the motor to the frame of the car are cast integral with the upper half of the case; the lower half can be removed for the inspection of the crankshaft and connecting rod bearings. A steel forging is used to make the crankshaft, and all the journals are accurately ground; the cylinders, pistons and rings are also ground to insure accuracy and good compression. The inlet piping is so disposed that the distance traveled by the gas from the carbureter to each of the cylinders is the same, so that the charges taken in by all the cylinders will be equal. The manufacturers state that in addition to the regular factory tests for horsepower, these motors will be tested in a testing car if the purchaser so desires.

DAYTON INSTRUCTION BOOK.—For the benefit of automobilists and other users of explosion engines the Dayton Electrical Manufacturing Company, of Dayton, O., has prepared an instruction book which not only describes the Dayton ignition apparatus, but gives a great deal of general information regarding ignition systems and the care and handling of ignition apparatus in general. The Apple dynamos and magnetos made for make-and-break and for high-tension or jump-spark ignition are described and detailed instructions given for their operation. Wiring diagrams are given for the installation of make-and-break and jump-spark ignition apparatus for engines with one, two or four cylinders. In addition to magnetos and dynamos, the Dayton company manufactures a storage battery for ignition purposes, indicating snap switches having four positions and an indicator to show the momentary position of the contacts and electric lighting fittings for small incandescent lamps for use in and about the car. The instruction book is brought to a close by a page of electrical definitions that cannot fail to be useful to the novice in electrical matters, and a list of the various parts of the Apple generators.

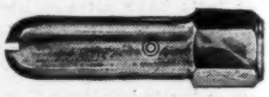
AUTOMOBILE WRENCH SET.—A wrench consisting of a shank with universal joint and socket, into which wrench-heads for nuts of various sizes fit, has been brought out by the Miller Combination Tool Company, Incorporated, of Syracuse, N. Y. The full set comprises sockets for the most commonly used sizes of both square and hexagon nuts, ratchet and plain handles, and

GIANT AUTOMOBILE WRENCH SET.

extension shanks for reaching inaccessible bolts. The set can be furnished either polished or unpolished, and is known as the Giant wrench set.

DAIMLER MANUFACTURING COMPANY, LONG ISLAND CITY, N. Y.—A real work of art is the little "Autocrat," a monthly brochure issued by the manufacturers of the American Mercedes in the interests of their car. There is a lot of well-written matter in the little book, and though of particular interest to those who know the car, it is also of interest to automobilists in general.

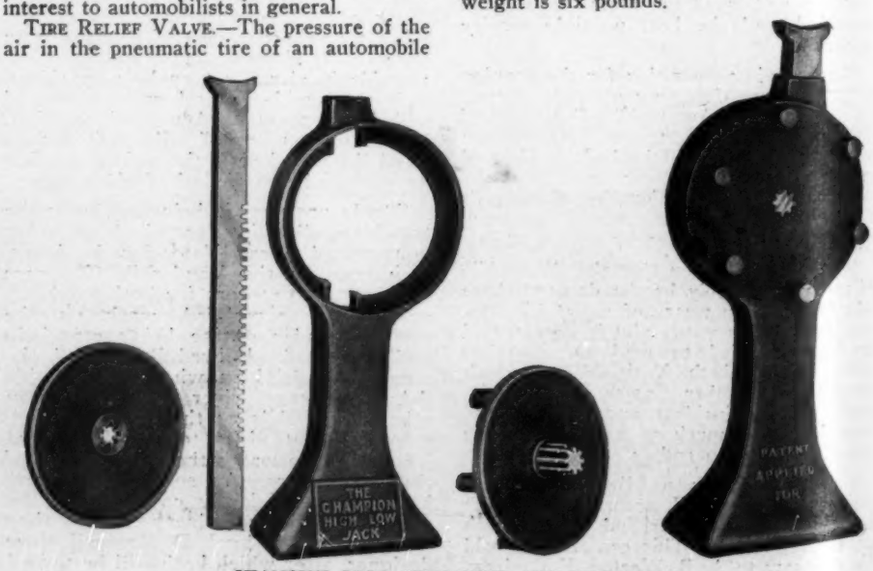
TIRE RELIEF VALVE.—The pressure of the air in the pneumatic tire of an automobile has a great deal to do with the comfort of the passengers and also with the life of the tire itself. If the pressure is too high, the tire is subjected to abnormal stresses and the car rides hard—the full resiliency of the air is not made use of. On the other hand, if there is not enough air in the tire it will be too soft, the tire will be likely to cut against the flanges of the rim, and



SAFETY RELIEF VALVE FOR TIRES.

the pressure will be insufficient to properly support the weight of the car. A device designed to prevent the excessive inflation of tires has been placed on the market by the Tire Safety Device Company, of 214 West 124th street, New York; this consists of a little safety valve, as shown in the illustration, the office of which is to "blow off" when the pressure is higher than it ought to be. Thus if the pumping is continued beyond the proper point the valve will commence to hiss, and thus warn the pumper that it is time to stop. On the other hand, he will know that until the valve blows off the tire is not sufficiently inflated, and he will not stop while there is less pressure than there ought to be.

COMPACT AUTOMOBILE JACK.—Simplicity, compactness, lightness and convenience of operation are characteristics of a new jack manufactured by Patterson, Gottfried & Hunter, of 150 Center street, New York. As the illustrations show, the jack has but five parts—the main casting, the tooth sliding bar, the back and front plates of the pinion. The back and front plates turn with the pinion and their friction against carefully surfaced recesses in the casting prevents the jack from running down under load. The bar can be raised or lowered easily by hand when there is no load on the jack; and when the weight rests on it, a hardwood handle is inserted between the studs projecting from the front plate and the load lifted. The height of the jack closed is 11 1-2 inches, and it has a lifting movement of six inches. It is so compact that it can easily be stowed, and is always ready for instant use. The base of the jack has been made wider than that shown in the illustration, giving the jack a firm footing. The weight is six pounds.



CHAMPION JACK, DISSEMBLED AND COMPLETE.